

**SECTION 00 0101  
HRA PROJECT TITLE PAGE**

**117 HATCH AVENUE**

**INVEST SAINT PAUL INITIATIVE  
NEIGHBORHOOD STABILIZATION PROGRAMS  
AND REBUILDING PLAN 2009-2013**

**OWNER**

**The Housing and Redevelopment Authority of Saint Paul, Minnesota**

25 West Fourth Street, Saint Paul, MN 55102, Suite 1100

**Marty McCarthy**

(651) 266- 6552

marty.mccarthy@ci.stpaul.mn.us

**HRA SCOPE WRITER**

**Cermak Rhoades Architects**

**275 East Fourth Street Suite 800 Saint Paul, MN 55101**

Terri Cermak

651-556-8631

tcermak@cermakrhoades.com

**HRA Construction Manager**

**Clinton Company Builders**

**1645 Palace Avenue Saint Paul, MN 55105**

Michael Buelow

651-260-5528

mbuelow@clintoncompany.com

**END OF PROJECT TITLE PAGE**

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**SECTION 00 4002**  
**HRA BID INVITATION**

**PART 1 GENERAL**

**1.01 CONTACT TRANSLATION**

- A. In Hmong - Ceeb toom. Yog koj xav tau kev pab txhais cov xov no rau koj dawb, Amy Filice 651-266-6568;
- B. In Spanish - Atención. Si desea recibir asistencia gratuita para traducir esta información, llame a Amy Filice 651-266-6568;
- C. In Somali - Ogow. Haddii aad dooneyso in lagaa kaalmeeyo tarjamadda macluumaadkani oo lacag la' aan wac, Amy Filice 651-266-6568.

**1.02 PROJECT SUMMARY**

- A. Project description: This is a Residential Renovation project located at 117 Hatch Ave. This project is funded by Neighborhood Stabilization Program through the The Housing and Redevelopment Authority of Saint Paul, Minnesota. This project is not required to conform to Federal and/or Little Davis Bacon requirements.

**1.03 NOTICE TO PROSPECTIVE BIDDERS**

- A. These documents constitute an invitation to bid to General Contractors for the construction of the project described within this bid manual.

**1.04 OWNERSHIP INFORMATION**

- A. The Owner, The Housing and Redevelopment Authority of Saint Paul, Minnesota, hereinafter, referred to as Owner.
- B. Owner's Project Manager: Marty McCarthy  
Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100  
Phone Number: (651) 266- 6552  
Email: marty.mccarthy@ci.stpaul.mn.us

**1.05 OWNER'S CONSULTANT(S)**

- A. Owner's Project Specification Consultant: Cermak Rhoades Architects
  - 1. Specification Writer's Name: Terri Cermak
  - 2. Address: 275 E. Fourth Street Suite 800, St. Paul, MN 55101
  - 3. Phone Number: (651) 556-8631
  - 4. Email: tcermak@cermakrhoades.com
- B. Owner's Construction Manager Consultant: Clinton Company Builders
  - 1. Construction Manager's Name: Michael Buelow
  - 2. Address: 1645 Palace Avenue Saint Paul, MN 55105
  - 3. Phone: 651-260-5528
  - 4. Email: mbuelow@clintoncompany.com

**1.06 IMPORTANT BID DATES**

- A. Bids Issued: Friday, August 3, 2012.
- B. Mandatory Pre-Bid Site Tour: Friday August 10, 2012 from 9:00 am to 10:30 am.
- C. **BID DUE DATE ON OR BEFORE:** Monday, August 27, 2012 no later than 2:00 PM local time.  
Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100.  
Suite: 1100
- D. **PUBLIC BID OPENING AND LOCATION:** Monday, August 27, 2012 2:15 PM local time. The Housing and Redevelopment Authority of Saint Paul, Minnesota  
Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100.  
Suite: 1100
- E. Executed Contract: Within 30 days of the bid award.

F. Construction Start Date (Approximate): ASAP after contract execution

G. Construction Completion Date: 120 days from the time of issued Notice to Proceed.

**END OF BID INVITATION**

**SECTION 00 4003**  
**HRA INSTRUCTIONS FOR BIDDERS**

**PART 1 GENERAL BID DIRECTIONS**

**1.01 EACH BIDDER SHALL FULLY INFORM HIM / HERSELF AND ANY SUBCONTRACTORS PRIOR TO BIDDING AS TO ALL EXISTING CONDITIONS AND LIMITATIONS INCLUDING COMPLIANCE REQUIREMENTS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL INCLUDE IN THE BID A SUM TO COVER THE COST OF ALL ITEMS NECESSARY TO PERFORM THE WORK AS SET FORTH IN THE BID PROJECT MANUAL. THE SUBMISSION OF A BID SHALL BE CONSTRUED AS CONCLUSIVE EVIDENCE THAT THE BIDDER HAS MADE SUCH EXAMINATION.**

**1.02 BID FORMS**

- A. The Bid Submission forms are available online at <http://www.stpaul.gov/nsp>.
- B. Each bid must be submitted on the Bid Submission forms identified in the provided checklist. It is expected that the Contractor retain a copy of their entire submittal for their records. The copy of the bid submitted must be signed at every place that a signature is requested.

**1.03 CORRECTIONS**

- A. Erasures or other changes in the bid must be dated and initialed over the signature of the bidder.

**1.04 BID ENVELOPE**

- A. Place bid in envelope with the contractor name and address in the upper left-hand corner as the return address, and list the property address in the middle of the envelope as the addressee. Seal envelope.

**1.05 INTERPRETATIONS OF SCOPE OF WORK**

- A. Every request for an interpretation shall be in writing, unless otherwise documented by the Specification Writer. Questions will be taken until 3 days before bids are due.
- B. Interpretations will be in the form of an addenda which will be on file at the website, and in the offices of the Specification Writer at least three calendar days before bids are opened.
- C. It shall be the bidder's responsibility to make inquiry as to addenda issued.
  - 1. All such addenda shall become a part of the contract and all bidders shall be bound by such addenda.

**1.06 CONFLICT WITH DOCUMENTS**

- A. When a conflict arises between the Drawings or the Scope of Work, the Drawings shall govern.

**1.07 MATERIALS APPROVED:**

- A. Where items of equipment and material are specifically identified herein by a trade name, model or catalog number, only such specified items may be used in the base bid.
- B. Contractors desiring approval of substitute products may submit data cut sheets and product information for approval during the bidding cycle.
- C. Contractors will be notified only by addendum of additional approved products.
- D. Material identifications made in work specifications are considered as minimal quality for acceptance in bidding and installation.

**1.08 ALTERNATES:**

- A. The Contractor must submit bids for each alternate listed in the Alternates List.
- B. If pricing is not listed for Alternates the bid may be disqualified.

**1.09 TIME FOR RECEIVING BIDS:**

- A. Bids are to be delivered to the HRA's office.
- B. Bids received prior to the time of opening will be securely kept.

- C. Bids received by phone or fax will not be considered.
- D. Modification of bids already submitted will be considered if received prior to the hour set for receiving the bids and written confirmation of such modification - with the signature of the bidder - is placed in the mail and postmarked and / or delivered to the HRA prior to the time set for bid opening.

#### **1.10 OPENING OF BIDS:**

- A. At the time and place fixed for the opening of bids, every bid received within the time fixed for receiving bids will be opened irrespective of any irregularities.
- B. The opening of the bids will be an "open process" (open to the public).

#### **1.11 WITHDRAWAL OF BIDS:**

- A. Bids may be withdrawn in writing, by phone, or by fax prior to the time fixed for opening; provided that written confirmation of any phoned or faxed withdrawal is placed in the mail and postmarked and / or delivered prior to the time set for bid opening.
- B. Negligence on the part of the bidder in preparing their bid confers no right of withdrawal or modification of his bid after such bid has been opened.

### **PART 2 BID ANALYSIS PROCESS**

#### **2.01 CONTRACTOR SELECTION DATE: EARLIEST PRACTICAL DATE**

- A. This project is funded by the Neighborhood Stabilization Program (NSP), a federal stimulus program created to rehabilitate vacant housing or construct new housing on vacant lots within targeted areas of the City of Saint Paul.
- B. The Housing and Redevelopment Authority of Saint Paul, Minnesota reserves the right to check the qualifications of contractors for each project; previous experience working on projects with the The Housing and Redevelopment Authority of Saint Paul, Minnesota, will not automatically deem a contractor qualified.

#### **2.02 MINIMUM CONTRACTOR QUALIFICATIONS**

- A. Please note the following minimum qualifications that apply to all bidders:
  1. **Quality Workmanship and Qualifications**
    - a. Three references from jobs with similar work (include on Contractor Qualification form)
    - b. Two financial references (included on Contractor Qualification Form)
    - c. At least 2 years of experience as a General Contractor (HRA will verify)
    - d. Review of standing with Secretary of State, Federal Excluded Parties list, City of Saint Paul Debarment list, Department of Labor and Industry, Better Business Bureau (HRA will verify)
    - e. Houses with historic features or located within a historic district may require demonstration of quality workmanship for historic renovation at the discretion of HRA staff.
  2. **Financial Capacity**
    - a. Demonstrated ability to pay two months of construction costs for each project awarded (these amounts are added together if more than one project is under construction). Financial capacity documentation must be in the name of the General Contractors organization or the principal of that organization.
      - 1) For a 120 day project, the contractor shall demonstrate the ability to pay 50% of bid amount.
      - 2) For a 90 day project, the contractor shall demonstrate the ability to pay 65% of the bid amount.
      - 3) Demonstration of capacity can be in the form of:
        - (a) Line of credit from banking or lending institution
        - (b) Cash balances from banking or lending institution
  3. **Ability to Perform**



- a. Up-to-date submittals to Affirmative Action, Section 3, and Vendor Outreach programs.
- b. Adherence to timelines confirmed from professional references.
- c. Use of certified subcontractors for environmental remediation including:
  - 1) Insulation: contractor must be on Xcel Energy approved contractor list
  - 2) Asbestos: contractor must be certified for asbestos removal by the State of Minnesota
  - 3) Lead: either general contractor or subcontractor must be certified for lead abatement by the State of Minnesota
  - 4) Radon: contractor must be on Minnesota Department of Health approved radon mitigation list.
- 4. **Bid Award Policy**
  - a. Contractors that meet the criteria for qualification above, yet have not worked with The Housing and Redevelopment Authority of Saint Paul, Minnesota on a Neighborhood Stabilization Program project previously will initially be awarded one house, even if the contractor is low bidder for more than one house.
  - b. Once the contractor demonstrates quality workmanship, financial capacity, and ability to perform timely completion, they may be awarded more than one house at the same time for subsequent bids on a case-by-case basis.
- 5. **Other Qualifications**
  - a. Each property has its own unique characteristics and challenges. Variables include items relating to environmental conditions, historic nature of structures, etc.
  - b. Depending on the specific property, there may be other qualifications needed by the bidder which will be specified by the HRA in its request for bids.

## **PART 3 POST AWARD REQUIREMENTS**

### **3.01 CONSTRUCTION CONTRACT REQUIREMENTS**

- A. The bidder agrees that, if selected by the HRA, the bidder will enter into a contract with the HRA no later than 30 calendar days from bid award and will submit the following information to the HRA as a condition to entering into that contract; refer to Bid Rehab Manual for attachments:
  - 1. Certificates of Insurance as required by the Construction Contract and proof of Insurance and Bonding.
  - 2. Final Sworn Construction Statement Affidavit and Sworn Construction Statement that list contractors, material suppliers, and subcontractors, who will work under the contract and the cost of their work.
  - 3. Proof of a valid license as a Residential builder in the State of Minnesota and proof of valid licenses as required by the City of Saint Paul for work to be done.
  - 4. Bidders may be required to submit payment and performance bonds as a condition of the construction contract. Verify with Scope Writer prior to submitting bid.
  - 5. Proof of compliance with requirements attached for Affirmative Action, Vendor Outreach Program, and Section 3, including an Acknowledgement and Final Section 3 Action Plan.
  - 6. Construction Schedule must be submitted to the Clinton Company Builders to enter into the Contract.
- B. Attendance of a Pre-Construction Conference
  - 1. The selected Contractor and all Subcontractors will be required to attend a Pre-Construction Conference.
  - 2. Time, date, and place of the Pre-Construction Conference will be announced by the Clinton Company Builders and/or HRA.
- C. Computerized System for Compliance Tracking and Reporting:
  - 1. The Contractor is required to use the B2Gnow/LCPtracker reporting system. Refer to attachment.

**PART 3 WAGE REQUIREMENTS**

**4.01 THE FOLLOWING ARE WAGE REQUIREMENTS ASSOCIATED WITH THIS PROJECTS**

- A. Federal Davis-Bacon and/or Little Davis-Bacon Wages are not required for this project.

**END OF SECTION**

**SECTION 00 4101**  
**HRA BID SUBMISSION DOCUMENTS**

**SECTION 1 GENERAL**

**1.01 BID SUBMISSION DOCUMENTS, LOCATED AT [HTTP://WWW.STPAUL.GOV/NSP](http://www.stpaul.gov/NSP)**

- A. Bid Submittal Checklist
- B. Bid Cover Sheet
- C. Bid Proposal and Non-Collusive Affidavit
- D. Preliminary Section-3 Action Plan
- E. Contractor Application / Statement of Qualifications
- F. Itemized Cost Breakdown and Scope of Work Bid (Section 004102)

**END OF SECTION**

**SECTION 00 4102**

**HRA LINE ITEM BID SHEET**

**PART 1 MANUAL BID SHEET - LINE ITEM BREAKDOWN OF WORK**

**DIVISION 02 - EXISTING CONDITIONS**

024100 - Demolition	\$ _____
028200 - Asbestos Remediation	\$ _____
028313 - Lead Hazard Control Activities	\$ _____

**DIVISION 03 - CONCRETE**

033000 - Cast in Place Concrete	\$ _____
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**DIVISION 04 - MASONRY**

040100 - Maintenance of Masonry	\$ _____
042300 - Glass Unit Masonry	\$ _____

**DIVISION 05 - METALS**

057300 - Decorative Metal Railings	\$ _____
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**DIVISION 06 - WOOD, PLASTICS AND COMPOSITES**

061000 - Rough Carpentry	\$ _____
062000 - Finish Carpentry	\$ _____

**DIVISION 07 - THERMAL AND MOISTURE PROTECTION**

072119 - Foamed-In-Place Insulation	\$ _____
072126 - Blown Insulation	\$ _____
072500 - Weather Barriers	\$ _____
072700 - Air Barrier System	\$ _____
073113 - Asphalt Shingles	\$ _____
074646 - Fiber Cement Siding	\$ _____
075323 - EPDM Roofing	\$ _____
076200 - Sheet Metal Flashing and Trim	\$ _____
077123 - Manufactured Gutters and Downspouts	\$ _____

**DIVISION 08 - OPENINGS**

081100 - Exterior Insulated Metal Doors and Frames	\$ _____
081429 - Wood Doors	\$ _____
085313 - Vinyl Windows	\$ _____

**DIVISION 09 - FINISHES**

090120 - Repair of Plaster and Gypsum Board	\$ _____
090160 - Hardwood Flooring Restoration	\$ _____
092116 - Gypsum Board Assemblies	\$ _____
093000 - Tiling	\$ _____
096500 - Resilient Flooring	\$ _____
099000 - Painting and Coating	\$ _____

**DIVISION 10 - SPECIALTIES**

105623 - Closet Storage Shelving	\$ _____
107446 - Window Wells	\$ _____

**DIVISION 11 - EQUIPMENT**

113100 - HRA Residential Appliances \$ \_\_\_\_\_

**DIVISION 12 - FURNISHINGS**

121110 - HRA Mail Box and House Numbers \$ \_\_\_\_\_

121111 - Bathroom Furnishings \$ \_\_\_\_\_

123530 - Residential Casework \$ \_\_\_\_\_

**DIVISION 22 - PLUMBING**

223000 - Plumbing Equipment \$ \_\_\_\_\_

224000 - Plumbing Fixtures \$ \_\_\_\_\_

**DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING**

235400 - Forced Air Furnace and Ducts \$ \_\_\_\_\_

**DIVISION 26 - ELECTRICAL**

261001 - Power, Wiring and Devices \$ \_\_\_\_\_

265101 - HRA Lighting \$ \_\_\_\_\_

**DIVISION 28 - ELECTRONIC SAFETY AND SECURITY**

281600 - Intrusion Detection \$ \_\_\_\_\_

**DIVISION 31 - EARTHWORK**

312200 - Grading \$ \_\_\_\_\_

**DIVISION 32 - EXTERIOR IMPROVEMENTS**

321313 - Concrete Paving \$ \_\_\_\_\_

323113 - Chain Link Fences and Gates \$ \_\_\_\_\_

329223 - Sodding \$ \_\_\_\_\_

329300 - Planting \$ \_\_\_\_\_

**END OF SECTION**

**SECTION 01 0010**  
**HRA GENERAL REQUIREMENTS**

**PART 1 GENERAL**

**1.01 CONTRACTOR'S RESPONSIBILITY**

- A. All labor, material, supplies, tools, or other costs or items needed for complete construction of the project, including permits, temporary facilities, safety, security and utilities during construction, are the responsibility of the Contractor.
- B. The General Contractor and each Subcontractor shall inspect the existing conditions that affect its work before starting. Commencing work signifies acceptance of the previous work. All measurements and dimensions indicated in the Drawings and Specifications are to be verified prior to bid submittal and construction.
- C. The General Contractor shall be responsible for the coordination of all subcontractors working on, or furnishing material for use on this project. In addition, the General Contractor shall be responsible for the coordination of all work performed under separate contracts.

**1.02 CONTRACTOR'S USE OF PREMISES**

- A. During the construction period the General Contractor and its Subcontractors shall have full use of the premises for construction operations, including use of the site. All use of the site shall be under control and supervision of the General Contractor.
- B. General Contractor and its Subcontractors will be limited to construction work between the hours of 7:00 am and 6:00 pm on weekdays and 8:00 am to 4:00 pm on Saturday. Work at any other times will be allowed only with the Owner's and Project Manager's consent.

**1.03 MATERIALS & MATERIAL STORAGE**

- A. The General Contractor shall provide all materials, hardware, and fixtures required to accomplish the Scope of Work, unless otherwise indicated.
- B. The General Contractor shall use materials specified throughout unless approved in writing by Owner and Project Manager before ordering and installing.
- C. The General Contractor is responsible for verification of all measurements. Materials transported to the job site and stored are the General Contractor's responsibility until installed and accepted by the Owner and Project Manager.
- D. The General Contractor shall deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
- E. Damaged or stolen materials and equipment must be replaced as part of the work at no additional cost to the Owner. Damaged property that is removed shall belong to the General Contractor, unless otherwise stated in writing.

**PART 2 PERFORMANCE REQUIREMENTS**

**2.01 ENERGY CONSERVATION**

- A. General
  - 1. This property must go through Xcel Energy's Home Performance with Energy Star program.
  - 2. This means that all insulation and HVAC work must be performed by Xcel Energy's approved contractor list.
  - 3. General Contractors that are on the Home Performance list may choose Subcontractors that are not on the list, but those General Contractors will be held responsible for all work completed.
  - 4. The "Specifications for Energy Improvement Upgrades" provided by the Neighborhood Energy Connection (See appendix) are a part of the Scope of Work for this property.
  - 5. Any discrepancies between the Scope of Work and NEC's specifications are to be clarified during the bid process.

- B. Provide an Energy Efficient Lighting
  - 1. All fixtures should have energy efficient CFLs or LED lamps that are within the maximum wattage allowable.
  - 2. The Owner and Project Manager shall select specific locations of fixtures and switches in each area.
  - 3. All lighting fixtures will be purchased new, unless otherwise indicated in the scope of work.
  - 4. No plastic lighting fixtures are acceptable.
  - 5. No fluorescent tube light fixtures are acceptable in living spaces.
  - 6. Provide light bulbs for all fixtures. All light fixtures are to have color corrected bulbs. Light bulbs that are viewable within fixtures will be a globe or candelabra style CFL.
  - 7. Provide and install lighting fixtures and switches.
  - 8. Review fixtures with Owner and Project Manager prior to installation.
  - 9. All electrical outlets and cover plates are to be replaced throughout the building, unless otherwise indicated in the scope of work.

## **2.02 ENERGY EFFICIENT APPLIANCES**

- A. All appliances must be purchased new and be Energy STAR certified or high efficiency models when Energy STAR certification is not possible.
- B. High-efficiency appliances meet the following standards:
- C. Clothes washers must have a CEE Tier 2 or higher, a minimum Energy Factor of 2.0 or greater, and a water factor 6.0 or less.
- D. Clothes Dryers must be a minimum 7.0 cubic feet capacity, have a sensor dry system, and have 5 Temperature Levels - High, Medium High, Medium, Low & Ultra Low
- E. Dishwashers must be CEE Tier 2 or higher, with a minimum Energy Factor of 0.68 or greater, and a maximum annual energy use of 325 kilowatt-hours or less.

## **2.03 LOW FLOW PLUMBING FIXTURES**

- A. New plumbing fixtures should be water conserving fixtures with a faucet flow rate of 1.3 GPM or less and a commode flush rate of 1.2 GPF or less.

## **PART 3 PRICE AND PAYMENT PROCEDURES**

### **3.01 SCHEDULE OF VALUES**

- A. Form to be used: Sworn Construction Statement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Construction Manager for approval.
- C. Forms filled out by hand will not be accepted.

### **3.02 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Construction Manager for approval.
- C. Forms filled out by hand will not be accepted.
- D. Execute certification/pay application by signature of authorized officer.
- E. Submit two copies of each Application for Payment to Construction Manager.

## **PART 4 CONTRACT MODIFICATION PROCEDURES**

### **4.01 HRA WINTER WORK POLICY**

- A. The Housing and Redevelopment Authority of the City of St. Paul (HRA) recognizes that there are weather related exterior items that cannot be completed in winter conditions ("Weather Conditional Work"), including but not limited to:
  - 1. Exterior painting
  - 2. Sod

3. Foundation plantings
  4. Rain garden installation
  5. Concrete sidewalks, steps, landings, curbs, garage slabs, and asphalt driveways
- B. The HRA defines winter conditions as “temperatures consistently below a high of 50 degrees Fahrenheit”. Winter conditions are typically in effect from November 15th through April 15th each year, although there is potential for an earlier or later start and end date depending on weather.
  - C. In the case of NSP homes where a notice to proceed is issued between October and February, the time parameter of winter conditions could mean that the entire timeline for construction completion (typically 90-120 days) is within winter conditions.
  - D. It is the responsibility of the contractor to communicate, to the Owner, the exterior line items in the scope of work that are Weather Conditional Work as a component of the timeline submission required prior to issuance of a notice to proceed.
  - E. Contractors are also responsible for ensuring that all Weather Conditional Work is completed within the manufacturer’s or industry standards recommended temperature range.
  - F. The Contractor is responsible for prioritizing Weather Related Work when winter conditions are not present, in order to complete the house within the construction timeline whenever possible.
  - G. The HRA’s objective is to ensure that remodeling work on NSP projects is substantially complete within the timeline for construction completion (90-120 days) so that the project can be issued a certificate of occupancy and sold to a new homeowner; the contractor is responsible for ensuring that temporary, structurally sound solutions are implemented when Weather Related Work will effect the ability to secure a Certificate of Occupancy.
  - H. In the event that winter conditions are present throughout the 120 day construction contract period, the HRA will escrow 1 and 1/2 times the cost for Weather Conditional Work (150%), to be completed within 30 days of the end of winter conditions.

#### **4.02 SUBSTITUTIONS**

- A. Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the General Contractor after award of the Contract are considered to be requests for substitutions.
- B. Submit requests according to procedures required for change-order proposals.
- C. Substitution requests shall include a complete list of changes or modifications needed in the Scope of Work in order to accommodate the proposed substitution.
- D. Provide samples and product data, including drawings and descriptions of products as well as fabrication and installation procedures, where applicable or where requested by the Owner or Project Manager.
- E. Indicate the substitution’s effect on the Contractor’s Construction Schedule, if any. Indicate cost information, including a proposal of the net change, if any, in the Contract Sum. Acceptance will be in the form of a written Change Order signed by the Owner and Project Manager.

### **PART 5 COMPLIANCE INFORMATION AND REQUIREMENTS**

#### **5.01 SEE HRA NSP WEBSITE FOR COMPLIANCE REQUIREMENTS.**

- A. <http://www.stpaul.gov/nspp>
- B. Review the document labeled: Section II - Compliance Information and Requirements.
  1. It contains additional information on:
    - a. Insurance
    - b. B2Gnow/LCP Tracker, Contract Compliance Monitoring System
    - c. Vendor Outreach Program
    - d. Affirmative Action
    - e. Sustainable Green Policy
    - f. Section 3
    - g. Two Bid Policy



- h. Limited English Policy
- i. Xcel Energy Participating Contractors' List
- j. Radon Mitigation Contractors' List

## **5.02 SECURITY PROCEDURES**

- A. General Contractor is responsible for maintaining security of the site, including:
  - 1. locking buildings at the end of each work day;
  - 2. boarding window or door openings;
  - 3. installing security fencing;
  - 4. providing temporary barricades, bracing or railings;
  - 5. and any other work or facilities necessary to maintain a safe and secure site, including compliance with all health, safety, building, and other codes and laws.
- B. Any tools or materials or other property stored on the site prior to installation are the responsibility of the General Contractor and its Subcontractors are responsible for insuring their own such property against loss by theft or other cause.

## **5.03 JOB CONDITIONS**

- A. The General Contractor shall notify the Owner and Project Manager of repair not covered in the Scope of Work that is necessary for satisfactory completion of the Project.
- B. Defects that become evident as work progresses shall be reported not concealed.
- C. Ensure safe passage of all employees during the course of demolition or other persons as necessary by erecting barriers, bracing, or other temporary supports as required.

## **5.04 SAFETY AND CLEAN UP**

- A. The General Contractor must keep the site clean at all times during construction.
- B. In no event can debris be stored outside overnight unless it is inside a dumpster.
- C. All floors are to be picked up and kept broom clean at the end of the work day.
- D. No combustible debris shall be thrown, stored, or burned on the property, adjacent parcels, sidewalks, streets, or alleys.
- E. Debris created from work at the property must be disposed of immediately.
- F. Any debris caused by the General Contractor or its Subcontractor shall be removed from the work area in the General Contractor's containers and disposed of off site by the General Contractor.

## **PART 6 SPECIAL PROCEDURES**

### **6.01 ASBESTOS ABATEMENT,**

- A. If asbestos is found on this project follow the necessary requirements for proper abatement. A contractor must be licensed by the Minnesota Department of Health to perform asbestos-related work. Asbestos-related work includes the work area preparation, enclosure, removal, or encapsulation of asbestos-containing material.

### **6.02 LOW VOC, SEE SECTION 01 6116**

### **6.03 LEAD BASED PAINT**

- A. General Information
  - 1. Projects funded in whole or in part with federal funds must comply with the "Regulation on Lead-Based Paint Hazards in Federally Owned Housing and Housing Receiving Federal Assistance".
  - 2. Properties built after 1/1/78 and properties needing emergency rehab assistance are exempt from Lead-Based Paint Regulation requirements.
  - 3. All projects receiving over \$25,000 of HUD funds per unit for rehabilitation, must abate all Lead-based paint hazards.
- B. **Removal Procedures**
  - 1. Risk Assessments:

- a. A Risk Assessment must be completed by a licensed Lead-Based Paint Risk Assessor on all properties built before 1/1/78 (excluding emergency rehab cases).
  - b. The Owner or Project Manager arranges and pays for the Risk Assessment.
  - c. The Risk Assessment report will summarize the nature and scope of known lead-based paint hazards.
- C. Licensed Lead Abatement Supervisor: Only General or Subcontractors who are State licensed Lead Abatement Supervisors are allowed to bid on projects involving lead hazard reduction work.
- D. Project Plan: The General Contractor must prepare a written project plan and communicate it to the Owner and Project Manager. It shall include:
  - 1. Start-up date and how long the project is expected to last.
  - 2. Areas to be abated and precautions to take.
  - 3. A warning to pay attention to the caution signs that are posted by the General Contractor around the project site.
  - 4. Location of areas that may be restricted.
- E. The selected General Contractor performs the work, using lead hazard control measures where indicated in the Scope of Work.
- F. The General contractor will notify the Project Manager when work is complete.
- G. A Clearance Test for lead-based paint dust is required upon completion of the Lead Based Paint Hazard Reduction Project Plan.
  - 1. The Clearance Test must be performed by a State licensed Clearance Examiner.
  - 2. It is the responsibility of the General Contractor to arrange and pay for any and all of the Clearance Tests that may be required. If the Clearance Test indicates lead levels lower than acceptable amounts, the General Contractor's lead reduction and control work is complete and the final construction payment application may be processed.
  - 3. If the Clearance Test is found to contain lead levels above an acceptable amount, the General Contractor must clean the work area again and request another Clearance Test at no additional cost to the Owner, until the Clearance Test is passed.
  - 4. The Final payment application will not be processed until all areas are determined to be free of hazardous lead levels.
- H. Additional Information:
  - 1. General Contractor must obtain and review the following documents, which provide more detailed information on lead paint hazards and reduction and control measures:
    - a. Minnesota Department of Lead program, "Safely Working with Lead While Remodeling the Older Home" pamphlet series. 1-651-215-0890.
      - 1) U.S. Environmental Protection Agency, "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers, and Schools" 21 page booklet. <<http://www.epa.gov/lead/pubs/rrpamph.pdf>>
      - 2) U.S. Department of Housing and Urban Development, "Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work:". English and Spanish versions available. <[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/healthy\\_homes/healthyhomes/lead](http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/healthyhomes/lead)>
      - 3) U.S. Department of Housing and Urban Development, "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing". October 1996. <[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/healthy\\_homes/lbp/hudguidelines](http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/lbp/hudguidelines)>
      - 4) U.S. Environmental Protection Agency, "Model Lead-Based Paint Abatement Worker Training Course." English and Spanish versions available. <<http://www.epa.gov/lead/pubs/abateworker.htm>>
      - 5) U.S. Environmental Protection Agency, "Lead Safety for Renovation, Repair, and Remodeling: Student Manual". <[http://www.epa.gov/lead/pubs/rrp\\_8hr\\_studentmanual\\_feb09.pdf](http://www.epa.gov/lead/pubs/rrp_8hr_studentmanual_feb09.pdf)>

I. Abatement:

1. Component Replacement: The removal of building components that contain lead-based paint. It is most appropriate for items such as doors, windows, trim, and cabinets.
2. Paint Removal: The separation of paint from the substrate using safe heat, chemical, or abrasive methods. It may be done on- or off-site. Abrasive methods can create a great deal of dust, are the most hazardous, and require the greatest care and most thorough clean-up.
3. Enclosure: The installation of a barrier (such as gypsum board or paneling) that is mechanically attached to the building component, with all edges and seams sealed to prevent escape of lead-based paint dust. It is most appropriate for large surfaces, such as walls, ceilings, floors, and exteriors.
4. Encapsulation: The application of a liquid or adhesive material that covers the component and forms a barrier that makes the lead-based paint surface inaccessible by relying upon adhesion. It may be appropriate for many kinds of smooth surfaces but it cannot be used effectively on friction surfaces, surfaces in poor condition, or surfaces that may become wet. It also must be compatible with existing paint.
5. Soil Removal: The removal of at least the top six inches of topsoil is adequate for most projects. In areas with heavy contamination, up to two feet may have to be removed, and must be disposed of using proper waste management techniques that comply with local requirements. The maximum lead concentration in replacement soil shall not exceed 200 ug/g. Sod or seeding of new soil should occur.
6. Soil Cultivation: The mixing of low lead soil with high lead soil is an appropriate method if the average lead concentration of the soil to be abated is below 1,500 ug/g. Thorough mixing is required, and pilot testing of various techniques may be needed to ensure that thorough mixing does occur.
7. Paving: The covering of highly contaminated soil with high quality concrete or asphalt. Paving is common in high traffic areas but not appropriate in play areas. The need for uncontaminated replacement soil is eliminated as is waste disposal costs. Paving often turns out to be the most economical recourse, despite its aesthetic disadvantages.

**6.04 WASTE MANAGEMENT, SEE SECTION 01 7419**

**PART 6 SUBMITTALS**

**7.01 GENERAL**

- A. Coordinate preparation and processing of submittals with performance of construction activities.
- B. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- C. Provide the following submittals required for performance of the Work, including the following:
  1. Administrative Submittals.
  2. Construction Schedule
  3. Samples/Product Data.

**7.02 ADMINISTRATIVE SUBMITTALS**

- A. Provide as required in the Contract Documents. Such submittals include, but are not limited to, the following:
  1. Sworn Construction Statement
  2. Required permits.
  3. Applications for Payment.
  4. Insurance certificates.
  5. List of subcontractors.

**7.03 CONSTRUCTION SCHEDULE**

- A. A construction schedule must be submitted to the Owner and Project Manager with the bid, unless requested otherwise in writing. Construction shall be completed within 120 days of notice to proceed.

#### **7.04 SAMPLES/PRODUCT DATA:**

- A. Submit Samples as specified to be physically identical with the material or product proposed.
- B. Samples include partial sections of manufactures or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
- C. Provide product samples and/or product data for the following where included in the scope of work and for any other requirements mentioned in the specifications or drawings:
  - 1. Paint colors.
  - 2. Masonry and mortar color samples.
  - 3. Windows.
  - 4. Doors and hardware.
  - 5. Bathroom accessories.
  - 6. Kitchen cabinets.
  - 7. Plumbing fixtures.
  - 8. Lighting fixtures.
  - 9. Foundation waterproofing.
  - 10. Stair railings.
  - 11. Tile.
  - 12. Carpet.
  - 13. Interior trim samples.
  - 14. Exterior trim and siding samples.

**END OF SECTION**

**SECTION 01 2000**  
**PAYMENT PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Procedures for preparation and submittal of applications for progress payments.

**1.02 PAYMENT DOCUMENTS**

- A. All documents required to create a complete Payment Application can be downloaded from <https://sites.google.com/site/nspconstructiondocs/>
- B. Payment Application form to be used: Application and Certificate for Payment provided by the HRA.
  - 1. Columns A, B, C should not change during the course of construction and should directly relate to the Sworn Construction Statement provided at the start of construction. As draws progress, columns D, E and F change to reflect work completed.
- C. Additional Documents to be submitted with each pay application:
  - 1. Monthly Employment Utilization (MEU) Form
  - 2. Identification of Prime and Subcontractor Form
    - a. An updated Sub ID sheet must be attached to help HR/EEO staff track subcontractor utilization.
  - 3. B2Gnow
    - a. Ensure each subcontractor is logging into the B2Gnow system and logging payments received.

**1.03 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Submit at intervals stipulated in the Agreement. The Owner will process the payment within 30 days.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Construction Manager for approval.
- C. Forms filled out by hand will not be accepted.
- D. Applications for payment must be signed by an authorized officer of the general construction firm
- E. Use data from approved Sworn Construction Statement. Provide dollar value in each column for each line item for portion of work performed.
- F. Submit one signed copy of the Application for Payment, complete with all required attachments, to the Construction Manager.

**1.04 MODIFICATION PROCEDURES**

- A. For minor changes not involving an adjustment to the Contract Price or Contract Time, Construction Manager will issue instructions directly to Contractor.
- B. For changes for which advance pricing is desired, Construction Manager will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within \_\_\_\_ days.
- C. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
- D. Execution of Change Orders: Construction Manager will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- E. After execution of Change Order, promptly revise Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.

1. Change orders shall be listed as lump sums on the bottom of the pay application and referred to on the cover sheet.
2. Include each line item of the change order as a separate line item in the pay application and the amount of the contractor adjustments.

#### **1.05 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Price, previous payments, and sum remaining due.
- B. Additional documents:
  1. Final lien waivers from all subcontractors/material providers
  2. Monthly Employment Utilization (MEU) Form
  3. Project Employment Utilization (PEU) for City Funded Projects
  4. Lead Clearance
  5. NEC Certificate of Completion
  6. Waste Management Plan Report
  7. Permit Sign-offs/Certificate of Code Compliance
  8. Winter Work/Weather Related Work Escrow
  9. Certificate of Substantial/Final Completion
- C. See Section 01 7700 - Closeout Procedures and Submittals, for additional information.

**END OF SECTION**

## **SECTION 01 2300**

### **ALTERNATES**

#### **PART 1 GENERAL**

##### **1.01 ACCEPTANCE OF ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

##### **1.02 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1: ADD DRAIN TILE AND SUMP: Alternate: Provide draitile with filter fabric and gravel surround around entire perimeter of basement sloped to new sealed sump pit. Provide sump pump and outlet and discharge to grade on east side of building. Sawcut perimeter of basement slab for installation of drain tile and patch concrete slab.
- B. Alternate No. 2: SOLID SURFACE COUNTERTOP: Provide solid surface countertop in kitchen in lieu of plastic laminate.

#### **PART 2 PRODUCTS - NOT USED**

#### **PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 6000**  
**PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

**PART 2 PRODUCTS**

**2.01 EXISTING PRODUCTS**

- A. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.
- B. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

**2.02 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
- C. Regionally-Sourced Products:
  - 1. Overall Project Requirement: Provide materials amounting to a minimum of 10 percent of the total value of all materials (excluding plumbing, HVAC, electrical, elevators, and other equipment) that have been extracted, harvested, or recovered, as well as manufactured, within a radius of 500 miles (805 km) from the project site.
    - a. This provision is applicable to LEED Credit MR 5.1; show quantity on LEED report.
  - 2. Specific Product Categories: Provide regionally-sourced products as specified elsewhere.

**2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

**PART 3 EXECUTION**

**3.01 SUBSTITUTION PROCEDURES**

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- C. A request for substitution constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- D. Substitution Submittal Procedure:
  - 1. Submit two copies of request for substitution for consideration. Limit each request to one proposed substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
  - 3. The Construction Manager will notify Contractor in writing of decision to accept or reject request.



### **3.02 TRANSPORTATION AND HANDLING**

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.03 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Prevent contact with material that may cause corrosion, discoloration, or staining.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## **SECTION 01 6116**

### **VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Implement the following procedures in an effort to improve indoor air quality during Owner's occupancy.
- B. Construction Indoor Air Quality (IAQ) Management
  - 1. Provide low-emitting products

##### **1.02 SECTION INCLUDES**

- A. VOC restrictions for product categories listed below under "DEFINITIONS."
- B. All products of each category that are installed in the project must comply; Owner's project goals do not allow for partial compliance.

##### **1.03 DEFINITIONS**

- A. VOC-Restricted Products: All products of each of the following categories when installed or applied on-site in the building interior:
  - 1. Adhesives, sealants, and sealer coatings.
  - 2. Carpet.
  - 3. Carpet cushion.
  - 4. Resilient floor coverings.
  - 5. Wood flooring.
  - 6. Paints and coatings.
  - 7. Insulation.
  - 8. Gypsum board.
  - 9. Acoustical ceilings and panels.
  - 10. Cabinet work.
  - 11. Wall coverings.
  - 12. Composite wood and agrifiber products used either alone or as part of another product.
  - 13. Other products when specifically stated in the specifications.
- B. Interior of Building: Anywhere inside the exterior weather barrier.
- C. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.
- D. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

##### **1.04 REFERENCE STANDARDS**

- A. CAL (CHPS LEM) - Low-Emitting Materials Product List; California Collaborative for High Performance Schools (CHPS); current edition at [www.chps.net/](http://www.chps.net/).
- B. CAL (VOC) - Standard Practice for the Testing of Volatile Organic Emissions From Various Sources Using Small-Scale Environmental Chambers (including Addendum 2004-01); State of California Department of Health Services; 2004
- C. CRI (GLCC) - Green Label Testing Program - Approved Product Categories for Carpet Cushion; Carpet and Rug Institute; Current Edition.
- D. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; Carpet and Rug Institute; Current Edition.
- E. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at [www.greenguard.org](http://www.greenguard.org).
- F. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2000.
- G. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).

- H. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at [www.scs-certified.com](http://www.scs-certified.com).

## **1.05 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. All VOC-Restricted Products: Provide products having VOC content of types and volume not greater than those specified in State of California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions From Various Sources Using Small-Scale Environmental Chambers.
1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Current GREENGUARD Children & Schools certification; [www.greenguard.org](http://www.greenguard.org).
    - b. Current Carpet and Rug Institute Green Label Plus certification; [www.carpet-rug.org](http://www.carpet-rug.org).
    - c. Current SCS Floorscore certification; [www.scs-certified.com](http://www.scs-certified.com).
    - d. Current SCS Indoor Advantage Gold certification; [www.scs-certified.com](http://www.scs-certified.com).
    - e. Product listing in the CHPS Low-Emitting Materials Product List at [www.chps.net/manual/lem\\_table.htm](http://www.chps.net/manual/lem_table.htm).
    - f. Current certification by any other agencies acceptable to CHPS.
    - g. Report of laboratory testing performed in accordance with CHPS requirements for getting a product listed in the Low-Emitting Materials Product List; report must include laboratory's statement that the product meets the specified criteria.
- B. Adhesives and Joint Sealants: Provide only products having volatile organic compound (VOC) content not greater than required by South Coast Air Quality Management District Rule No.1168.
1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Report of laboratory testing performed in accordance with requirements.
    - b. Published product data showing compliance with requirements.
    - c. Certification by manufacturer that product complies with requirements.
- C. Aerosol Adhesives: Provide only products having volatile organic compound (VOC) content not greater than required by GreenSeal GS-36.
1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Current GreenSeal Certification.
- D. Paints and Coatings applied within building waterproof envelope:
1. Comply with VOC Content limits (as noted in Criterion 6.1) of Green Seal Standard GS-11 "Paints," First Edition; Standard GC-03 "Anti Corrosive Paints," and MPI GPS-2-8, as follows (in grams/Liter):
    - a. Flat: 50
    - b. Non-flat: 50
    - c. Anti-Corrosive and Anti Rust: 250
    - d. Floor Coatings: 100
- E. Carpet and Adhesive: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.
1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Current Green Label Plus Certification.
    - b. Report of laboratory testing performed in accordance with requirements.
- F. Carpet, Carpet Cushion, and Adhesive: Provide products having VOC content as specified in Section 09 6800.
- G. Carpet Cushion: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.
1. Evidence of Compliance: Acceptable types of evidence are:

- a. Current Green Label Plus Certification.
  - b. Report of laboratory testing performed in accordance with requirements.
- H. Composite Wood and Agrifiber Products and Adhesives Used for Laminating Them: Provide products having no added urea-formaldehyde resins.
  - 1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Current SCS "No Added Urea Formaldehyde" certification; [www.scs-certified.com](http://www.scs-certified.com).
    - b. Published product data showing compliance with requirements.
    - c. Certification by manufacturer that product complies with requirements.
- I. Other Product Categories: Comply with limitations specified elsewhere.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Incorporate procedures and processes during construction and prior to occupancy as described herein

### **3.02 FIELD QUALITY CONTROL**

- A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.
- B. All additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

**END OF SECTION**

**SECTION 01 7000**  
**EXECUTION REQUIREMENTS**

**PART 1 GENERAL**

**1.01 QUALIFICATIONS**

- A. For survey work, employ a land surveyor registered in Minnesota and acceptable to Construction Manager. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

**1.02 PROJECT CONDITIONS**

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- C. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- D. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- F. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

**PART 2 PRODUCTS**

**2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

**3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.

- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Construction Manager of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Construction Manager the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Construction Manager.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, ground floor elevations.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.

### **3.04 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Provide openings for penetration of mechanical, electrical, and other services.
  - 4. Match work that has been cut to adjacent work.
  - 5. Repair areas adjacent to cuts to required condition.
  - 6. Repair new work damaged by subsequent work.
  - 7. Remove samples of installed work for testing when requested.
  - 8. Remove and replace defective and non-conforming work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.
- I. Patching:
  - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  - 2. Match color, texture, and appearance.
  - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

### **3.08 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.09 FINAL CLEANING**

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.

- F. Clean debris from roofs, gutters, downspouts, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.10 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
- B. Review Section 01 7700 CLOSEOUT PROCEDURES AND SUBMITTALS.
- C. Notify Construction Manager when work is considered ready for Substantial Completion.
- D. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Construction Manager's review.
- E. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- F. Notify Construction Manager when work is considered finally complete.
- G. Complete items of work determined by Construction Manager's final inspection.

**END OF SECTION**



## **SECTION 01 7419**

### **CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

#### **PART 1 GENERAL**

##### **1.01 WASTE MANAGEMENT REQUIREMENTS**

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. HRA Policy for this project is dependent on diversion of 50 percent, by weight, of potential landfill trash/waste by recycling and/or salvage.
- E. The following recycling incentive programs are mandatory for this project; Contractor is responsible for implementation:
- F. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.
- G. Methods of trash/waste disposal that are not acceptable are:
  - 1. Burning on the project site.
  - 2. Burying on the project site.
  - 3. Dumping or burying on other property, public or private.
  - 4. Other illegal dumping or burying.
- H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

##### **1.02 DEFINITIONS**

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

### 1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. ACTION SUBMITALS
  - 1. **CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT(CWM) PLAN**
    - a. Analysis of estimated job-site waste to be generated, including types and quantities of compostable, recyclable, and salvageable materials.
    - b. Description of means and methods to achieve 50 percent diversion requirement for compostable, recyclable, and salvageable materials, including those that may be donated to charitable organizations.
    - c. Identification of the carpet product's composition as polymer, nylon or polypropylene
    - d. Identification of recycling contractors and haulers proposed for use in the project and locations accepting construction waste materials or entities providing related services.
- C. FINAL WASTE MANAGMENT REPORT: General Contractor is responsible to submit at completion of construction and prior to contract close-out, in electronic format.
  - 1. All information required in Waste Management Progress Reports
  - 2. Legible copies of on-site logs, manifests, weight tickets, and receipts.
  - 3. Final calculations, including total amount (by weight or volume) of diverted construction and demolition waste, and the total amount (by weight or volume) of landfilled waste.
- D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
  - 1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
  - 2. Submit Report on a form acceptable to Owner.
  - 3. Landfill Disposal: Include the following information:
    - a. Identification of material.
    - b. Amount, in tons or cubic yards (cubic meters), of trash/waste material from the project disposed of in landfills.
    - c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
    - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
  - 4. Incinerator Disposal: Include the following information:
    - a. Identification of material.
    - b. Amount, in tons or cubic yards (cubic meters), of trash/waste material from the project delivered to incinerators.
    - c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
    - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
  - 5. Recycled and Salvaged Materials: Include the following information for each:
    - a. Identification of material, including those retrieved by installer for use on other projects.
    - b. Amount, in tons or cubic yards (cubic meters), date removed from the project site, and receiving party.

- c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
  - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
  - e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
- 6. Material Reused on Project: Include the following information for each:
  - a. Identification of material and how it was used in the project.
  - b. Amount, in tons or cubic yards (cubic meters).
  - c. Include weight tickets as evidence of quantity.
- 7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.
- E. Recycling Incentive Programs:
  - 1. Where revenue accrues to Contractor, submit copies of documentation required to qualify for incentive.
  - 2. Where revenue accrues to Owner, submit any additional documentation required by Owner in addition to information provided in periodic Waste Disposal Report.

### **PART 3 EXECUTION**

#### **2.01 WASTE MANAGEMENT PROCEDURES**

- A. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. See Section 01 5000 for additional requirements related to trash/waste collection and removal facilities and services.
- C. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.
- D. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

#### **2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION**

- A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor and Construction Manager.
- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.
- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
  - 1. Pre-bid meeting.
  - 2. Pre-construction meeting.
  - 3. Regular job-site meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
  - 1. Provide containers as required.
  - 2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
  - 3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.
- F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
- G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified

materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

- H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
- I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

### **2.03 UNACCEPTABLE METHODS OF WASTE DISPOSAL**

- A. Burning or incinerating on or off project site
- B. Burying on project site, other than fill.
- C. Dumping or burying on other property, public or private, other than official landfill.
- D. Illegal dumping or burying.

**END OF SECTION**

**SECTION 01 7700**  
**CLOSEOUT PROCEDURES AND SUBMITTALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

**1.02 SUBMITTALS**

- A. All documents required to create a complete Final Payment Application can be downloaded from <https://sites.google.com/site/nspconstructiondocs/>
- B. Notify Construction Manager when work is considered ready for Substantial Completion.
  - 1. Make sure the work is mostly complete and cleaned for inspection.
- C. Substantial Completion Submittals:
  - 1. Project Record Documents: Submit documents listed below to Construction Manager:
    - a. Final Pay Application
    - b. Monthly Employment Utilization (MEU) Form
    - c. Project Employment Utilization (PEU) for City Funded Projects
    - d. Lead-based Paint Hazard Clearance Testing
    - e. Energy Modeling/NEC Compliance Report
    - f. Final Waste Management Report, see Section 01 7419 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
    - g. Permit Closeout/Code Compliance
    - h. Winter Work/Weather Related Work Escrow
    - i. Final Lien Waivers
    - j. Material Allowance Reconciliation Change Order (if necessary).
- D. Notify Construction Manager when work is considered finally completed. All Punch List items shall be completed and approved by Construction Manager and HRA Project Manager.
- E. Final Completion Submittals:
  - 1. Project Record Documents: Submit documents listed below to Construction Manager:
    - a. Building Maintenance Manual and Warranty documents for following:
      - 1) Appliance and building systems
        - (a) HVAC equipment
        - (b) Lighting equipment
        - (c) Kitchen and Laundry Appliance Manuals
      - 2) Water-using equipment and controls installed:
        - (a) Hot water delivery system(s)
        - (b) Toilets
        - (c) Faucets
        - (d) Shower head(s)
        - (e) Dishwasher
        - (f) Clothes washer
    - b. Signed Certificate of Substantial Completion
    - c. Punch List Items Completed

**PART 3 EXECUTION**

**2.01 LEAD-BASED PAINT HAZARD CLEARANCE TESTING**

- A. Where lead-based paint hazard control or reduction work has been performed by the General Contractor, the General Contractor will contact a certified third party Clearance Technician from Ramsey County Department of Public Health or other certified testing agency for clearance testing.

**2.02 ENERGY MODELING (NEC)**

- A. Contractor must work with the Neighborhood Energy Connection (NEC) who will:
  - 1. Create an energy model with the building plans and specifications to show the building's projected energy performance in the design stages

2. Conduct a mid-construction pre drywall thermal enclosure inspection
3. Verify the final performance of the building with performance testing

### **2.03 OPERATION AND MAINTENANCE MANUALS**

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.

**END OF SECTION**

**SECTION 01 8113**  
**SUSTAINABLE DESIGN REQUIREMENTS**

**PART 1 GENERAL**

**1.01 ENERGY CONSERVATION**

- A. This property must go through Xcel Energy's Home Performance with Energy Star program.
  - 1. All insulation and HVAC work must be performed by Xcel Energy's approved contractor list.
  - 2. General Contractors that are on the Home Performance list may choose Subcontractors that are not on the list, but those General Contractors will be held responsible for all work completed.
  - 3. General Contractors will be responsible for submitting documentation required of the Home Performance with Energy Star program and will be responsible for achieving Energy Improvements outlined by Neighborhood Energy Connection.
  - 4. The "Specifications for Energy Improvement Upgrades" provided by the Neighborhood Energy Connection (See appendix) are a part of the Scope of Work for this property.
  - 5. Any discrepancies between the Scope of Work and NEC's specifications are to be clarified during the bid process.
- B. Energy Efficient Lighting
  - 1. The Owner/Project Manager shall select specific locations of fixtures and switches in each area.
  - 2. All lighting fixtures will be purchased new, unless otherwise indicated.
  - 3. No plastic lighting fixtures are acceptable.
  - 4. No fluorescent tub light fixtures are acceptable in living spaces.
  - 5. Provide Energy Star certified CFL or LED light bulbs for all fixtures.
  - 6. All light fixtures are to have color corrected bulbs.
  - 7. Light bulbs that are viewable within fixtures will be a globe or candelabra style CFL.
  - 8. Provide and install lighting fixtures and switches.
  - 9. Review fixtures with Owner prior to installation.
  - 10. All electrical outlets and cover plates are to be replaced throughout the building.
- C. Energy Efficient Appliances
  - 1. All appliances must be purchased new and be Energy Star certified or high efficiency models when Energy Star certification is not possible.
  - 2. High-efficiency appliances meet the following standards

**1.02 QUALITY ASSURANCE**

- A. The Neighborhood Energy Connection (NEC), through its Peak Performace Homes custom consulting program, certifies independent consultants who provide developers with specific information about how to increase the energy efficiency of thier buildings.

**PART 2 PRODUCTS**

**2.01 LOW-EMITTING MATERIALS**

- A. Cabinet Materials: Low VOC
  - 1. Provide wood cabinets with self closing hinges and adjustable shelves from the Schrock Select (available at Menards), Mid-Continent Cabinetry (available at All Inc), or MINNCOR (available at MINNCOR) design lines or approved equal.
  - 2. Cabinets are to have plywood sides and bases.
  - 3. Drawer boxes shall be plywood with dovetail joinery.
  - 4. Cabinets to be constructed with maple; full overlay doors and flat or 5 piece. Alternative styles may be approval by the HRA.

**PART 3 EXECUTION**

**3.01 CONSTRUCTION WASTE MANAGEMENT**

- A. Comply with Construction Waste Management and Disposal Plan. Section 01 7419

### **3.02 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT**

- A. Change all air filters regularly during construction with filters specified for the specific furnace.
  - 1. Replace all air filters immediately prior to Substantial Completion with the specified permanent filters.

**END OF SECTION**



**SECTION 02 4100**  
**DEMOLITION**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Remove wood steps, landing and railing at front entry.
- B. Remove precast concrete steps, landing and metal railing at rear entry.
- C. Remove remnants of firepit in rear yard.
- D. Remove all concrete paving and pavers on the property, along with the poured-in-place concrete drain trough on the west side yard.
- E. Remove all chain link fencing.
- F. Remove steel clothesline poles in rear yard.
- G. Remove wood edging at planting bed at front porch and rear entry stoop.
- H. Remove all existing roofing materials on house and garage down to sheathing.
- I. Remove all gutters and downspouts on house.
- J. Remove metal and fiberglass awnings over front porch door and rear entry door.
- K. Remove all existing metal siding and trim system on house. Temporarily detach electrical service mast and meter from siding and resecure after new siding is installed.
- L. Remove all existing metal fascia and soffit system on house.
- M. Remove all original painted wood lap siding, trim, fascia and soffit on house down to exterior sheathing. Original painted wood lap siding, trim and window trim is identified as having lead-containing paint finish.
- N. Remove all vinyl siding on garage.
- O. Remove garage window.
- P. Remove garage service door, frame and hardware set. Existing overhead door remains.
- Q. Remove front entry wood storm door and rear entry metal storm door. Front entry wood storm door is identified as having lead-containing paint finish.
- R. Remove front and rear entry doors, frames and hardware sets. Retain existing interior wood casing for use with new doors and frames. Rear entry door is identified as having lead-containing paint finish.
- S. Remove front porch structure entirely except three post footings and concrete masonry post bases to remain. Painted and metal materials on porch walls, floor, windows and porch ceiling are identified as having lead-containing finish.
- T. Remove brick chimney entirely from basement floor to top above roof.
- U. Remove all improvements in basement down to foundation walls, first floor joists and slab, including adhered flooring materials.
- V. Remove existing wood stairway and railing at basement. Wood is identified as having lead-containing paint finish.
- W. Remove furnace and water heater.
- X. Remove all basement windows down to masonry openings.
- Y. Remove electrical panel and all electrical wiring, devices and light fixtures throughout the house.
- Z. Remove all plumbing supply and drain piping throughout the house back to house connections at mains.
- AA. Remove all plumbing vent piping throughout the house.
- AB. Remove all HVAC grilles.
- AC. Remove thermostat.

- AD. Remove doorbell chime and doorbell at front entry.
- AE. Remove window treatment hardware and window blinds throughout the house.
- AF. Remove closet rods, shelves and hooks from all closets except bedroom 2 closet with attic access panel to retain existing rod and shelving.
- AG. Remove existing carpet and pad in living room, dining room, bedroom 1 and bedroom 2.
- AH. Remove all existing smoke detectors and surface mounted duplex receptacle and wire mould in living room.
- AI. Remove masonite paneling and wood base trim on walls at rear entry surrounding the stairway to basement.
- AJ. Remove concealed-spline acoustical ceiling tile at rear entry.
- AK. Remove all existing kitchen cabinets, countertops, porcelain wall panels, decorative wood valence over window, range hood, gas piping, wood casing at doorway to dining and wood base trim. Existing soffit and porcelain panel ceiling to remain in kitchen.
- AL. Remove asbestos-containing flooring in kitchen, pantry and rear entry down to subfloor.
- AM. Gut kitchen pantry down to subfloor, wall studs and ceiling joists, including all electrical and interior window casing trim.
- AN. Remove stud wall between pantry and bathroom.
- AO. Gut bathroom entirely down to subfloor, wall studs and ceiling joists, including all electrical and plumbing. Pink tile, ceiling, window casing and wall covering are identified as having lead-containing finish.
- AP. Remove entire existing window, frame and casing on west wall of living room.
- AQ. Remove entire existing window, frame and casing in kitchen.
- AR. Remove entire existing window, frame and casing in bathroom on north elevation.
- AS. Remove existing pantry, bathroom and kitchen-to-rear-entry doors, frames, casing and hardware.
- AT. Remove floor, floor framing and the bottom portion of the rear wall of the north closet in bedroom 2 to increase the basement stairway headroom opening.
- AU. Remove wallcovering in bedroom 2.
- AV. Remove base trim, window and door casing trim, chair rail and narrow trim at wall and ceiling corners in Bedroom 2.
- AW. Remove attic windows and storm windows.

## **1.02 RELATED REQUIREMENTS**

- A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- D. Section 01 7419 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

## **1.03 QUALITY ASSURANCE**

- A. Demolition Firm Qualifications: Company specializing in the type of work required.

## **PART 3 EXECUTION**

### **2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.

1. Obtain required permits.
  2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  3. Protect hardwood floors for possible refinishing later.
  4. Provide, erect, and maintain temporary barriers and security devices.
  5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  6. Do not close or obstruct roadways or sidewalks without permit.
  7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
  8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
  2. Prevent movement or settlement of adjacent structures.
  3. Stop work immediately if adjacent structures appear to be in danger.
- D. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- E. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Inform Project Manager of potential strategies to reuse construction material.
    - a. Only move forward with reusing of construction materials with Project Manager's consent.
  2. Dismantle existing construction and separate materials.
  3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

## **2.02 EXISTING UTILITIES**

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

## **2.03 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  1. Verify that construction and utility arrangements are as shown.
  2. Report discrepancies to Construction Manager before disturbing existing installation.
  3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- C. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated on drawings.
- D. Services (Including but not limited to Site, Building Interior, Building Exterior, HVAC, Plumbing, and Electrical): Remove existing systems and equipment as indicated.
- E. Protect existing work to remain.

#### **2.04 DEBRIS AND WASTE REMOVAL**

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; comply with requirements of Section 01 7419 - Waste Management.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

**SECTION 02 8200**  
**ASBESTOS REMEDIATION**

**PART 1 GENERAL**

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**1.01 DESCRIPTION OF WORK AND CONTRACTOR RESPONSIBILITIES**

- A. Provide all labor, equipment, material supervision and subcontracting for the removal and disposal of all Asbestos-Containing Material (ACM) as specified in the attached Asbestos Test.
- B. When work areas include both friable and nonfriable types of ACM, Contractor's shall prepare work area using procedures for friable asbestos removal.

**1.02 SUBMITTALS**

- A. Proof that the Contractor is qualified to perform Asbestos Remediation in the State of Minnesota.
- B. Test Reports: Indicate Complete Remediation of Project.

**PART 3 EXECUTION**

**2.01 LOCATIONS**

- A. Review the Asbestos report, included in this Manual, for locations.
- B. Asbestos has been identified at the following locationsLiving Room Ceiling

**END OF SECTION**

**SECTION 02 8313**  
**LEAD HAZARD CONTROL ACTIVITIES**

**PART 1 GENERAL**

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**1.01 GENERAL INFORMATION**

- A. Projects funded in whole or in part with federal funds must comply with the "Regulation on Lead-Based Paint Hazards in Federally Owned Housing and Housing Receiving Federal Assistance." As a component of Title X, Sections 1012 and 1013, rehabilitation projects receiving more than \$25,000 of federal funds must abate all lead.
- B. Properties built after 1/1/78 and properties needing emergency rehab assistance are exempt from Lead-Based Paint Regulations.

**1.02 LOCATIONS**

- A. Review the Lead Report, attached in this Manual. Locations where lead has been identified in the lead report are listed below, with references to the appropriate specification sections that define the expected level of finish.
  - 1. All original wood windows and painted brown exterior metal clad window components. See Demolition 02 4100 and Metal Clad Wood Windows 08 5213.
  - 2. Original interior wood doors. See Demolition 02 4100 and Wood Doors 08 1429.
  - 3. Original wood trim work. See Demolition 02 4100 and Finish Carpentry 06 2000.
  - 4. Any painted surface under the exterior siding, soffit, or fascia is assumed to be lead-containing. See Demolition 02 4100.
  - 5. Painted wood siding on front porch. See Demolition 02 4100.
  - 6. White painted wood ceiling on front porch. See Demolition 02 4100.
  - 7. Painted wood window components on front porch. See Demolition 02 4100.
  - 8. Painted red wall on second floor porch. See Demolition 02 4100.
  - 9. Painted red cementitious siding on second floor porch. See Demolition 02 4100.
  - 10. Painted red door on second floor porch. See Demolition 02 4100.
  - 11. Yellow metal siding on exterior. See Demolition 02 4100 and Fiber-cement siding 07 4626.
  - 12. Soil: Regrade site. See Grading 31 2200.
- B. A Licensed Lead Abatement Supervisor shall provide a project plan that addresses the subject surfaces in order to achieve the desired finished product defined in the noted specification sections.
- C. The General Contractor is responsible for ensuring that the project plan is implemented so that it meets the abatement requirements as defined in federal and state statutes.

**1.03 PRICE AND PAYMENT PROCEDURES**

- A. Provide a price for the appropriate methods of abatement required by this scope of work.

**1.04 SUBMITTALS**

- A. Project Plan: The General Contractor must prepare a written project plan and communicate it to the Construction Manager and Project Manager. It shall include:
  - 1. Start-up date and how long the project is expected to last.
  - 2. Areas to be abated and precautions to take.
  - 3. A warning to pay attention to the caution signs that are posted by the General Contractor around the project site.
  - 4. Location of areas that may be restricted.
- B. Test Reports: Indicate Lead Based Paint Clearance.
  - 1. Submitted at final draw

**1.05 QUALITY ASSURANCE**

- A. Licensed Lead Abatement Supervisor: Only General or Subcontractors who are State licensed to conduct lead hazard reduction work are allowed to bid on projects involving lead hazard reduction work. See Minnesota Statutes 144.9501-144.9512 and Minnesota Rules

4761.2000-4761.2700 for applicable safety precautions, disposal regulations, and other compliance regulations that apply to abatement activities.

### **PART 3 EXECUTION**

#### **2.01 ABATEMENT**

- A. When the Risk Assessment process determines that a Project contains a lead-based paint hazard, the General Contractor shall comply with the abatement measures defined by the following:
  - 1. HUD 24 CFR Part 35 Subpart A through R 35.1325:
    - a. [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/healthy\\_homes/enforcement/lshr](http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/enforcement/lshr)
  - 2. EPA 40 CFR 745.227(e).
    - a. <http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec745-227.pdf>.
  - 3. Minnesota Statutes 144.9501-144.9512 and Minnesota Rules 4761.2000-4761.2700
    - a. <http://www.health.state.mn.us/divs/eh/lead/rule.html>
- B. Definitions:
  - 1. Component Replacement: The removal of building components that contain lead-based paint. It is most appropriate for items such as doors, windows, trim, and cabinets.
  - 2. Paint Removal: The separation of paint from the substrate using safe heat, chemical, or abrasive methods. It may be done on- or off-site. Abrasive methods can create a great deal of dust, are the most hazardous, and require the greatest care and most thorough clean-up.
  - 3. Enclosure: The installation of a barrier (such as gypsum board or paneling) that is mechanically attached to the building component, with all edges and seams sealed to prevent escape of lead-based paint dust. It is most appropriate for large surfaces, such as walls, ceilings, floors, and exteriors.
  - 4. Encapsulation: The application of a liquid or adhesive material that covers the component and forms a barrier that makes the lead-based paint surface inaccessible by relying upon adhesion. It may be appropriate for many kinds of smooth surfaces but it cannot be used effectively on friction surfaces, surfaces in poor condition, or surfaces that may become wet. It also must be compatible with existing paint.
  - 5. Soil Removal: The removal of at least the top six inches of topsoil is adequate for most projects. In areas with heavy contamination, up to two feet may have to be removed, and must be disposed of using proper waste management techniques that comply with local requirements. The maximum lead concentration in replacement soil shall not exceed 200 ug/g. Sod or seeding of new soil should occur.
  - 6. Soil Cultivation: The mixing of low lead soil with high lead soil is an appropriate method if the average lead concentration of the soil to be abated is below 1,500 ug/g. Thorough mixing is required, and pilot testing of various techniques may be needed to ensure that thorough mixing does occur.
  - 7. Paving: The covering of highly contaminated soil with high quality concrete or asphalt. Paving is common in high traffic areas but not appropriate in play areas. The need for uncontaminated replacement soil is eliminated as is waste disposal costs. Paving often turns out to be the most economical recourse, despite its aesthetic disadvantages.

#### **2.02 LEAD-BASED PAINT HAZARD CLEARANCE TESTING**

- A. Where lead-based paint hazard control or reduction work has been performed by the General Contractor, the General Contractor will contact a certified third party risk assessor from Ramsey County Department of Public Health or other certified testing agency for clearance testing.
- B. The Clearance Technician will conduct a visual assessment of completed work, take dust samples, have dust samples analyzed, and prepare a Clearance Report.

- C. If sample results fail, Minnesota rules 4761.2670 subpart 2 and subpart 3 must be repeated. If test results of samples fail to meet clearance standards, surfaces must be retreated or recleaned at no additional cost to the Owner until clearance standard is met.
- D. When the Clearance Report indicates that clearance standards have been met, and all other requirements of this section have been met, the Construction Manager and Owner will approve the final pay application.

**END OF SECTION**



**SECTION 03 3000**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide subbase material and 4" thick concrete cap at former water meter pit to infill level with existing Basement floor.

**1.02 SECTION INCLUDES**

- A. Floors and slabs on grade.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- D. ASTM C150 - Standard Specification for Portland Cement; 2011.

**1.04 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
  - 1. Footings
    - a. Two #5 bar, continuous at garage footings.
    - b. Three #5 bar, continuous at earth retaining wall footings.
  - 2. Type: Deformed billet-steel bars.

**2.02 CONCRETE MATERIALS**

- A. Cement: ASTM C150, Type I - Normal Portland type.
  - 1. Acquire all cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C33.
  - 1. Acquire all aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C.
- D. Water: Clean and not detrimental to concrete.

**2.03 CHEMICAL ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. Water Reducing Admixture: ASTM C494/C494M Type A.

**2.04 ACCESSORY MATERIALS**

**2.05 CURING MATERIALS**

- A. Moisture-Retaining Sheet: ASTM C171.
  - 1. Curing paper, regular.
  - 2. Polyethylene film, clear, minimum nominal thickness of 0.0040 in. (0.10 mm).
  - 3. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd, 40 inches wide (305 grams per sq. meter).

## **2.06 CONCRETE MIX DESIGN**

- A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- B. Normal Weight Concrete:
  - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi (27.6 MPa).
  - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight, typical.
    - a. 20 percent at slabs on grade.
  - 3. Water-Cement Ratio: Maximum 50 percent by weight.
  - 4. Total Air Content: 1.5 percent, determined in accordance with ASTM C173/C173M.
  - 5. Maximum Slump: 4 inches (100 mm).
  - 6. Maximum Aggregate Size: 3/4 inch (19 mm), typical.

## **2.07 MIXING**

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
- B. Transit Mixers: Comply with ASTM C94/C94M.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
  - 1. Use latex bonding agent only for non-load-bearing applications.

### **3.02 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Construction Manager not less than 24 hours prior to commencement of placement operations.

### **3.03 FLOOR FLATNESS AND LEVELNESS TOLERANCES**

- A. Maximum Variation of Surface Flatness:
  - 1. Exposed Concrete Floors: 1/4 inch (6 mm) in 10 ft (3 m).
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

### **3.04 CONCRETE FINISHING**

- A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. "Steel trowel" as described in ACI 301.1R; Basement Floor.

### **3.05 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Surfaces Not in Contact with Forms:
  - 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
  - 2. Final Curing: Begin after initial curing but before surface is dry.

### **3.06 DEFECTIVE CONCRETE**

- A. Repair or replacement of defective concrete will be determined by the Construction Manager. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- B. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Construction Manager for each individual area.

**END OF SECTION**

**SECTION 04 0100**  
**MAINTENANCE OF MASONRY**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Sawcut larger opening in concrete masonry foundation wall at new egress window location.

**1.02 SECTION INCLUDES**

- A. Sawcutting existing concrete masonry wall.

**PART 2 PRODUCTS**

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Protect surrounding elements from damage due to restoration procedures.

**3.02 CLEANING**

- A. Remove excess mortar, smears, and droppings as work proceeds and upon completion.

**END OF SECTION**

**SECTION 04 2300**  
**GLASS UNIT MASONRY**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Replace all Basement windows, except new egress window, with glass block panels, including a vent unit in each panel.

**1.02 SECTION INCLUDES**

- A. Glass block panels with vent units.
- B. Perimeter treatment.

**PART 2 PRODUCTS**

**2.01 GLASS UNITS**

- A. Hollow Glass Units: Permanently seal hollow unit by heat fusing joint; with joint key to assist mortar bond.
  - 1. Provide the combination of unit sizes required to fit existing masonry opening size using whole units.
  - 2. Color: Clear glass.
  - 3. Pattern and Design: Light diffusive wavy design on inner faces.

**2.02 ACCESSORIES**

- A. Vent unit: Heavy duty, vinyl frame with operable insulated glass sash and full insect screen. Nominal 8"h. x 16"w. x same depth as glass block units.
- B. Sealant and Backer Rod: Silicone sealant to match mortar color, foam backer rod.
- C. Perimeter Channel: Extruded aluminum channel profile, 4-3/4 inch (120 mm) by 1-1/4 inch (32 mm) by 1/8 inch (3 mm) size, one piece per length installed, uncoated finish.

**2.03 MORTAR AND POINTING MATERIAL**

- A. Mortar: Type S with waterproofing admixture.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that existing wood windows and frames are completely removed and openings are ready to receive work.

**3.02 INSTALLATION**

- A. Shop fabricate glass block panels with perimeter channel, using all full block units to fit existing opening sizes. Set vent unit in center of each panel. Mortar joints to be uniform width and tooled concave.
- B. Install panel in existing opening with a full bed of mortar between masonry opening and sill and jambs. Provide foam backer rod and silicone sealant both interior and exteriors at head. Tool exposed joints slightly concave when mortar is thumbprint hard.

**3.03 CLEANING**

- A. Clean glass block/vent panel and surrounding surfaces upon completion, using materials and technique that will not scratch or deface units.

**END OF SECTION**

**SECTION 05 7300**  
**DECORATIVE METAL RAILINGS**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide shop-painted metal handrails at both sides of Front Porch and Rear Entry steps.

**1.02 SECTION INCLUDES**

- A. Free-standing and wall-mounted railings at steps and stoops.

**1.03 REFERENCE STANDARDS**

- A. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).

**1.04 WARRANTY**

- A. Warranty: Manufacturer's standard one year warranty against defects in materials, fabrication, finishes, and installation commencing on Date of Substantial Completion.

**PART 2 PRODUCTS**

**2.01 RAILING SYSTEMS**

- A. Railings - General: Factory- or shop-fabricated in design indicated, to suit specific project conditions, and for proper connection to building structure, and in largest practical sizes for delivery to site.
1. Design Criteria: Design and fabricate railings and anchorages to resist the following loads without failure, damage, or permanent set; loads do not need to be applied simultaneously.
    - a. Lateral Force: 75 lb (333 N) minimum, at any point, when tested in accordance with ASTM E935.
    - b. Distributed Load: 50 pounds per foot (0.73 kN per m) minimum, applied in any direction at the top of the handrail, when tested in accordance with ASTM E935.
    - c. Concentrated Loads on Intermediate Rails: 50 pounds per square ft (0.22 per sq m), minimum.
    - d. Concentrated Load: 200 pounds (888 N) minimum, applied in any direction at any point along the handrail system, when tested in accordance with ASTM E935.
  2. Assembly: Join lengths, seal open ends, and conceal exposed mounting bolts and nuts using slip-on non-weld mechanical fittings, flanges, escutcheons, and wall brackets.
  3. Joints: Tightly fitted and secured, machined smooth with hairline seams.
  4. Field Connections: Provide sleeves to accommodate site assembly and installation.
  5. Welded and Brazed Joints: Make exposed joints butt tight, flush, and hairline; use methods that avoid discoloration and damage of finish; grind smooth, polish, and restore to required finish.
    - a. Ease exposed edges to small uniform radius.
    - b. Welded Joints:
      - 1) Carbon Steel: Perform welding in accordance with AWS D 1.1/D1.1M.
      - 2) Stainless Steel: Perform welding in accordance with AWS D 1.6.
- B. Grout / anchoring cement: Premixed, nonshrink, nonmetallic grout.
- C. Steel and Iron: At round pipe railings: 1-1/2" outside diameter pipe. Top rails to be 2'-10" above stair nosing and extend 12" at top and bottom of stairs where possible.
1. Finishes: Prepare raw material by "Brush-Off Blast Cleaning". Rust inhibiting alkyd primer (1 coat and flat black finish (2 coats), applied in ship to all exposed surfaces of metal, even if not normally visible.

## **2.02 ACCESSORIES**

- A. Anchors and Fasteners: Provide anchors and other materials as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
  - 1. For anchorage to concrete, provide inserts to be cast into concrete for bolting anchors.
  - 2. For anchorage to wood, provide backing plates for bolting anchors.
  - 3. Exposed Fasteners: No exposed bolts or screws.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install components plumb and level, accurately fitted, free from distortion or defects and with tight joints, except where necessary for expansion.
- B. Anchor posts in concrete by inserting into formed or core-drilled holes and grout space between post and concrete.
- C. Anchor handrail ends to concrete and masonry with round flanges connected to rail ends and anchored to wall construction with drilled in expansion anchors.
- D. Anchor securely to wood structure using plates and bolts to meet design criteria.
- E. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- F. Isolate dissimilar materials with bituminous coating, bushings, grommets or washers to prevent electrolytic corrosion.

**END OF SECTION**

**SECTION 06 1000**  
**ROUGH CARPENTRY**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide wood steps at Front Porch.
- B. Provide wood landing and steps at Rear Entry.
- C. Provide all new Front Porch framing at floor, columns and roof as indicated on the Drawings.
- D. Provide decking at Front Porch.
- E. Provide gable end bracing in Garage ceiling.
- F. Provide knee walls in Attic to support rafters and correct the visible sag.
- G. Provide framing and finished sheathing and trim to create a new, raised floor at the north closet in Bedroom 2 to increase the Basement stairway headroom opening.
- H. Provide new wood Basement stairway in new rise/run configuration for less steep slope.
- I. Provide wood guardrail and handrail at Basement stairway.
- J. Provide permanent attachment at top and bottom of wood columns in Basement to wood beam and concrete floor.
- K. Provide stud wall framing at new partition in Basement. Use treated wood sill plate and studs.
- L. Cut and frame all new wider window openings on west wall of Living room for 3 separate window units with full studs between to maintain bearing capacity of wall.
- M. Modify Kitchen window opening size for narrower and taller window units. Infill resulting exterior wall opening around window rough opening with wall construction to match adjacent assembly.
- N. Infill openings at first floor and Attic floor where chimney was removed with floor/ceiling assembly to match adjacent assembly.
- O. Provide roof framing infill opening where chimney was removed. Sheathing included in asphalt roofing section.
- P. Infill opening at former Bathroom window on north elevation with wall construction to match adjacent assembly.
- Q. Infill Bathroom door opening with wall construction to match adjacent assembly.
- R. Provide subfloor repair in Bathroom in preparation of new underlayment for tile flooring throughout the new, larger Bathroom.
- S. Provide blocking in Bathroom walls for fixtures and accessories.

**1.02 SECTION INCLUDES**

- A. Structural dimension lumber framing.
- B. Non-structural dimension lumber framing.
- C. Rough opening framing for doors, windows, and roof openings.
- D. Sheathing.
- E. Subflooring.
- F. Underlayment.
- G. Miscellaneous framing and sheathing.
- H. Concealed wood blocking, nailers, and supports.
- I. Miscellaneous wood nailers, furring, and grounds.

**1.03 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.



## **1.04 REFERENCE STANDARDS**

- A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2001.
- B. PS 1 - Structural Plywood; 2007.

## **PART 2 PRODUCTS**

### **2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
  - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
  - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
  - 4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.
- B. Lumber fabricated from old growth timber is not permitted.
- C. Provide wood harvested within a 500 mile (805 km) radius of the project site; see Section 01 6000 for requirements for locally-sourced products.
- D. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted in lieu of sustainably harvested lumber provided it is clean, denailed, and free of paint and finish materials, and other contamination; identify source; see Section 01 6000 for requirements for reused products.
- E. Lumber fabricated from recovered timber (abandoned in transit) is permitted in lieu of sustainably harvested lumber, unless otherwise noted, provided it meets the specified requirements for new lumber and is free of contamination; identify source.

### **2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm) ):
  - 1. Grade: No. 2.
- D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 (50 by 150 mm through 100 by 400 mm) ):
- E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  - 1. Lumber: S4S, No. 2 or Standard Grade.
  - 2. Boards: Standard or No. 3.

### **2.03 CONSTRUCTION PANELS**

- A. Subfloor/Underlayment Combination: Plywood, APA PRP-108, Rated Sturd-I-Floor.
  - 1. Exposure Class: Exterior.
  - 2. Span Rating: 24 inches (610 mm).
  - 3. Thickness: 3/4 inches (19 mm), nominal.
  - 4. Edges: Tongue and groove.
- B. Roof Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, and as follows:
  - 1. Span Rating: 24/0 (610/0).
  - 2. Thickness: 1/2 inch (13 mm), nominal.
- C. Wall Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, and as follows:

1. Span Rating: 24/0 (610/0).
- D. Wall Sheathing: Plywood, PS 1, Grade C-D, Exposure I.

## **2.04 ACCESSORIES**

- A. Fasteners and Anchors:
  1. Metal and Finish: Stainless steel for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
  2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
- B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions. Provide \_\_\_\_\_ manufactured by \_\_\_\_\_.
  1. For contact with preservative treated wood in exposed locations, provide minimum G185 (Z550) galvanizing per ASTM A653/A653M.
- C. Subfloor Glue: Waterproof, water base, air cure type, cartridge dispensed.
- D. Water-Resistive Barrier: No. 15 asphalt felt.
- E. Building Paper: Water-resistant Kraft paper.

## **2.05 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.02 FRAMING INSTALLATION**

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches (38 mm) of bearing at each end.
- F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

### **3.03 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

### **3.04 INSTALLATION OF CONSTRUCTION PANELS**

- A. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.
- B. Underlayment: Secure to subflooring with nails and glue.
  - 1. Place building paper between floor underlayment and subflooring.
- C. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
  - 1. Nail panels to framing; staples are not permitted.
- D. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

### **3.05 TOLERANCES**

- A. Framing Members: 1/4 inch (6 mm) from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet (2 mm/m) maximum, and 1/4 inch in 30 feet (7 mm in 10 m) maximum.

**END OF SECTION**

**SECTION 06 2000**  
**FINISH CARPENTRY**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide wood base trim, base shoe and window and door casing trim in Bedroom 2 and Kitchen. Wood profiles and configurations to match the base trim and window and door casing in Living room.
- B. Provide wood door casing trim at both sides of Bathroom door. Wood profiles and configurations to match the door casing in Living room.
- C. Replace latch side piece of front entry door interior casing due to extensive damage at lockset. Match original profile and species.
- D. Provide wide wood casing trim for interior side of new windows on west wall of Living room and Bathroom. Match existing Living room window casing size, profile and species.
- E. Provide base shoe trim in Living, Dining and Bedroom 1.
- F. Provide 2-3/4" high ranch style base trim and base shoe in Rear Entry.
- G. Provide wall-mounted wood handrail on basement stairway.
- H. Provide finish trim at Front Porch columns, beams, floor edge, railing, fascia and beadboard soffit as indicated on the Drawings.

**1.02 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Wood casings and moldings.
- C. Beadboard soffit panels.
- D. Wood railing and trim at all new front Porch.
- E. Hardware and attachment accessories.

**1.03 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.04 REFERENCE STANDARDS**

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

**1.05 RELATED SECTIONS**

- A. See Section 09 9000 Painting and Coating, for trim finish and color.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect work from moisture damage.

**PART 2 PRODUCTS**

**2.01 FINISH CARPENTRY ITEMS**

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Premium Grade.
- B. Exterior Woodwork Items:
  - 1. finish trim at Front Porch columns, beams, floor edge, railing, fascia
    - a. Smooth 4 sides clear cedar..
- C. Beadboard Soffit: Plywood panels with beadboard finish on one side or 1x4 t&g beadboard paneling.
- D. Interior Woodwork Items:
  - 1. Moldings, Bases, Casings, and Miscellaneous Trim on First Floor: Clear birch to match existing first floor trim species; for stain finish.
  - 2. Interior Handrails: Clear fir; prepare for stained finish.

## **2.02 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.
- B. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000.
- C. Provide wood harvested within a 500 mile (805 km) radius of the project site.

## **2.03 LUMBER MATERIALS**

- A. Interior Hardwood Lumber at trim: Birch species, smoothsawn, maximum moisture content of 6 percent ; with vertical grain , of quality suitable for transparent finish.
  - 1. Match existing Living trim profiles, sizes and configurations.

## **2.04 FASTENINGS**

- A. Exterior fasteners: Hot-dipped zinc coating or stainless steel.

## **2.05 HARDWARE**

- A. Handrail brackets: Heavy duty cast metal handrail brackets.

## **2.06 FABRICATION**

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

# **PART 3 EXECUTION**

## **3.01 INSTALLATION**

- A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Use finish nails of sufficient length to penetrate framing 1".
- D. Mitre all lap joints, and break all lap joints over framing.
- E. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (1 mm). Do not use additional overlay trim to conceal larger gaps.
- F. Standing and running trim: Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Cope at returns and miter at corners.

## **3.02 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch (1.5 mm).
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.7 mm).

**END OF SECTION**

**SECTION 07 2119**  
**FOAMED-IN-PLACE INSULATION**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide 2" minimum spray foam insulation in Bathroom exterior and interior stud wall cavities and ceiling joist cavities. Apply from interior side of walls and ceilings.

**1.02 SECTION INCLUDES**

- A. Foamed-in-place insulation.
  - 1. In exterior and interior framed walls and ceilings.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Foamed-In-Place Insulation: Medium-density, rigid or semi-rigid, closed cell polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.
  - 1. Water Absorption: Less than 2 percent by volume, maximum, when tested in accordance with ASTM D2842.
  - 2. Closed Cell Content: At least 90 percent.

**2.02 ACCESSORIES**

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify work within construction spaces or crevices is complete prior to insulation application.
- B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

**3.02 PREPARATION**

- A. Mask and protect adjacent surfaces from over spray or dusting.
- B. Apply primer in accordance with manufacturer's instructions.

**3.03 APPLICATION**

- A. Apply insulation in accordance with manufacturer's instructions.
- B. Apply insulation by spray method, to a uniform monolithic density without voids.
- C. Apply to a minimum cured thickness of two inch (\_\_\_\_ mm).
- D. Where applied to voids and gaps assure space for expansion to avoid pressure on adjacent materials that may bind operable parts.
- E. Trim excess away for applied trim or remove as required for continuous sealant bead.

**END OF SECTION**

**SECTION 07 2126**  
**BLOWN INSULATION**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide dense-pack cellulose insulation in all exterior stud wall cavities, except Bathroom exterior walls. Determine that cavities are free of hazards and can support dense-packing pressures and locate drilling hazards. Completely fill each cavity to a consistent density of 3.5 lbs/cu.ft.
- B. Install air chutes at all Attic rafter spaces.
- C. Provide blown cellulose insulation in Attic after all bypasses are sealed. Blow insulation to depth indicated on manufacturer's coverage chart consistently and evenly to attain R-50.

**1.02 SECTION INCLUDES**

- A. Exterior Walls: Loose insulation pneumatically placed and poured into wall spaces through access holes.
- B. Attic: Loose insulation pneumatically placed and poured into joist spaces through access holes.

**1.03 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.04 REFERENCE STANDARDS**

- A. ASTM C739 - Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation; 2011.
- B. ASTM C1015 - Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation; 2006.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Loose Fill Insulation: ASTM C739, cellulose fiber type, nodulated for pour and bulk for pneumatic placement.
  - 1. R-Value: Attic R-50
- B. Dense Pack Insulation: Fill Insulation: ASTM C739, cellulose fiber type, nodulated for pour and bulk for pneumatic placement.
  - 1. R-Value: 19 if possible
  - 2. Density: 3.5 Lbs. per Cubic Foot for the entire cavity
- C. Ventilation Baffles: Formed plastic.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install insulation and ventilation baffle in accordance with ASTM C1015 and manufacturer's instructions.
- B. Drill 2 inch (50 mm) diameter insulation access ports in exterior sheathing and fascia boards prior to residing work to permit equipment access.
- C. Place insulation pneumatically to completely fill stud, joist, and rafter spaces .
- D. Pour insulation to completely fill stud, joist, and rafter spaces to a density of 3.5 lbs per cubic foot per cavity.
- E. Place insulation against attic vent baffles. Do not impede natural attic ventilation to soffit.
- F. Completely fill intended spaces. Leave no gaps or voids.
- G. Carefully seal all drilled holes with wood or foam plugs and patch all holes to match surrounding materials if the surface is exposed.
- H. In balloon framed houses insures that blown cellulose is blocked from entering floor cavities such as second floor flooring.

- I. ATTIC: Total r-value: R-50 according to NEC requirements.
  - 1. Dense pack below attic floor and blow above floor to meet R-50 requirement.
- J. WALLS: Where walls are unopened, externally dense pack insulation to R-19 if possible or 3.5 lbs.per cubic foot per cavity.
- K. Repair and reseal insulation access ports. Refinish to match disturbed work.

### **3.02 CLEANING**

- A. Remove loose insulation residue.

**END OF SECTION**



**SECTION 07 2700**  
**AIR BARRIER SYSTEM (SEALING OF BYPASSES)**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide air barrier in Attic as follows: Seal all Attic bypasses, including ductwork penetrations.
- B. Provide insulation at rim joist in Basement as follows: Seal cracks and holes in rim joist. Caulk or foam 3 inches of rigid insulation in place.
- C. Provide vapor retarder on interior side of exterior stud walls and ceiling at second floor area of former three-season porch which is to be fully finished.

**1.02 QUALITY ASSURANCE**

- A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in Minnesota.

**PART 2 PRODUCTS**

**2.01 ADHESIVES AND SEALANTS**

- A. VOC content not to exceed the following [g/L; less water and less exempt compounds]
  - 1. Multipurpose construction adhesives: 70 g/L

**PART 3 EXECUTION**

**4.01 ATTIC BYPASS SEALING**

- A. Contractor shall seal all attic bypasses. Bypasses shall be defined as any break in the envelope of a house between a heated living space and an unheated area or exterior. Bypass locations include, but are not limited to, the following areas: chimneys, soil stacks, end walls, dropped ceilings, open plumbing walls, beneath kneewalls and around duct work, electrical work and attic access points. Bypasses shall be sealed in such a manner that the movement of air through the bypass is essentially stopped. "Essentially stopped" means that air leakage will not be detected by an infrared scan when the house is pressurized to 30 Pascals. Materials to be used for sealing bypasses depend on the size and location of the bypass and meet code requirements. These materials include high quality caulks (20-year life span), polyethylene rod stock, foam, sheetrock, sheet metal, extruded polystyrene and densely packed insulation.

**4.02 RIM JOIST SEALING**

- A. Where accessible in basement, seal cracks and holes in first floor rim joist before insulating. Caulk or foam 3 inches of rigid insulation in place.

**4.03 VAPOR RETARDER**

- A. Interior Vapor Retarder: 6 Mil heavy plastic (polyethylene) sheeting.
  - 1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor retarder sheet.

**SECTION 07 3113**  
**ASPHALT SHINGLES**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide new roof sheathing over existing roof sheathing at house after roof rafter sagging is corrected with new knee wall in Attic.
- B. Provide new roof sheathing where chimney is removed at house.
- C. Provide continuous ridge vent and provide ridge vent manufacturer's recommended opening in roof sheathing at ridge line, cutting existing sheathing if necessary, without damage to rafters.
- D. Install pre-purchased roofing materials at house and Garage, including roofing felt, ice & water shield and asphalt shingles.

**1.02 SECTION INCLUDES**

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Associated metal flashings and accessories.

**1.03 REFERENCE STANDARDS**

- A. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- B. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2009.
- C. ASTM D3462 - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules; 2010a.
- D. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.
- E. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.

**1.04 UNIT PRICES**

- A. Roofing material has been purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
  - 1. Vendor: Lampert Roofing
  - 2. Pre-purchased materials:
    - a. GAF Elk Timberline 30 year HD Shingles
    - b. Timetex Ice and Water Shield 15 lb. felt.
- B. Roof sheathing replacement. Match existing material, thickness, and installation.
  - 1. Unit of measurement: Square foot.

**1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.

**PART 2 PRODUCTS**

**2.01 SHINGLES**

- A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462; Class A fire resistance.
  - 1. Self-sealing type.
  - 2. Manufacturer: GAF ELK, Timberline 30 Year HD shingles
  - 3. Style: Architectural Shingle.

## **2.02 SHEET MATERIALS**

- A. Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970; 40 mil (1 mm) total thickness; with strippable treated release paper and polyethylene sheet top surface.
  - 1. Manufacturers:
    - a. Grace Construction Products ; Product Ice & water shield.
- B. Underlayment: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D226 , Type I ("No.15").

## **2.03 ACCESSORIES**

- A. Nails: Standard round wire shingle type, of hot dipped zinc coated steel, minimum 3/8 inch (9.5 mm) head diameter and 0.105 inch (2.67 mm) shank diameter, 1-1/4 inch (31 mm) long.
- B. Plastic Cement: ASTM D4586, asphalt roof cement.
- C. Roof Vents at Garage: Pre-finished aluminum hoods with screens in color to match shingle color. Size and location of roof vents to be determined by contractor based on existing conditions, new vented soffit area and code requirements.
- D. Ridge Vents at House: Plastic, formed with vent openings that do not permit direct water or weather entry; flanged to receive shingles ; Cobra Rigidvent 2 manufactured by GAF Materials Corporation.

## **2.04 METAL FLASHINGS**

- A. Metal Flashings: Provide sheet metal gable edge, open valley flashing, chimney flashing, dormer flashing, and eave drip edge.
  - 1. Hem exposed edges of flashings minimum 1/4 inch (6 mm) on underside.
- B. Sheet Metal: Prefinished aluminum, 0.016 inch (0.4 mm) thick; PVC coating, match shingle color.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.

### **3.02 PREPARATION**

- A. Tear Off: Remove all old roofing materials down to roof sheathing. Provide ground surface protection with drop cloths to catch roofing debris and nails. Remove damaged sheathing and replace with new sheathing to match existing roof sheathing thickness, if approved by Construction Manager. Use nailing clips that allow air space between panel edges. Asphalt shingles shall be installed on sheathing with gaps no more than 1/2" wide. If existing sheathing has gaps over 1/2" wide over more than 10% of the surface area, the roof shall be re-sheathed.
- B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.
- C. Broom clean deck surfaces before installing underlayment or eave protection.

### **3.03 INSTALLATION - EAVE PROTECTION MEMBRANE**

- A. Install eave protection membrane from eave edge to minimum 4 ft (1 200 mm) up-slope beyond interior face of exterior wall.

### **3.04 INSTALLATION - UNDERLAYMENT**

- A. At Roof Slopes Greater Than 4:12 (1:3) : Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches (100 mm). Stagger end laps of each consecutive layer. Nail in place. Weather lap minimum 4 inches (100 mm) over eave protection.
- B. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

### **3.05 INSTALLATION - VALLEY PROTECTION**

- A. Install eave protection membrane 18" each side of valleys. Lap ends a minimum of 6 inches in the direction to shed water.

### **3.06 INSTALLATION - METAL FLASHING AND ACCESSORIES**

- A. Install flashings in accordance with NRCA requirements.
- B. Install roof vent and ridge vent in accordance with manufacturer's instructions.
- C. Weather lap joints minimum 2 inches (50 mm) and seal weather tight with plastic cement.
- D. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.
- E. Replace all plumbing and vent stacks with new units.
- F. Determine roof venting requirements and provide additional roof vents if necessary to meet current code requirements.

### **3.07 INSTALLATION - SHINGLES**

- A. Install shingles in accordance with manufacturer's instructions.
  - 1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.
  - 2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.
- B. Project first course of shingles 3/4 inch (19 mm) beyond fascia boards.
- C. Extend shingles 1/2 inch (13 mm) beyond face of gable edge fascia boards.
- D. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counterflashings.
- E. Complete installation to provide weather tight service.

### **3.08 CLEANUP**

- A. Rake and sweep ground surface to pick up all debris related to roofing work and nails that were not picked up by drop cloths.

**END OF SECTION**

**SECTION 07 4646**  
**FIBER CEMENT SIDING**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Install pre-purchased siding materials on house, including tyvek drain wrap and fibercement lap siding with 6" exposure.
- B. Provide fibercement trim at all corners, windows, doors, band at top of wall and skirtboard band, as indicated on the Drawings.
- C. Provide tyvek drain wrap and fibercement lap siding with 6" exposure on Garage. Provide metal drip edge above overhead door brick mould trim prior to residing. These materials have NOT been pre-purchased.

**1.02 SECTION INCLUDES**

- A. Fiber cement siding and trim system.

**1.03 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Siding substrate.
- B. Section 09 9000 - Painting and Coating: Field painting.

**1.04 REFERENCE STANDARDS**

- A. ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets; 2008.

**1.05 UNIT PRICE**

- A. Siding material FOR THE HOUSE has been purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
  - 1. Vendor: Lampert Siding
  - 2. Pre-purchased materials:
    - a. Pre-primed Hardie Plank Siding and corner trim. **(House Only)**
    - b. Cost of Hardie Siding for Garage not included in pre-purchase and should be included in the contractors bid.

**PART 2 PRODUCTS**

**2.01 SIDING**

- A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
  - 1. Style: Standard lap style.
  - 2. Texture: Smooth.
  - 3. Length: 12 ft (3.7 m), nominal.
  - 4. Width (Height): 7-1/4 inches (184 mm), 4" exposure.
  - 5. Thickness: 5/16 inch (8 mm), nominal.
  - 6. Finish: Factory applied primer. Finish painting to be applied by contractor.
  - 7. Warranty: 50 year limited; transferable.

**2.02 TRIM**

- A. Fibercement trim, 1" thick, in widths as indicated on the Drawings. Smooth texture.

**2.03 ACCESSORIES**

- A. Weather Barrier: Textured, spunbonded polyolefin, non-woven, non-perforated, weather barrier is based upon DuPont™ Tyvek® DrainWrap™ and related assembly components.

1. Performance Characteristics:
  - a. Air Penetration: 0.004 cfm/ft<sup>2</sup> at 75 Pa, when tested in accordance with ASTM E2178, Type I per ASTM E1677.
  - b. Water Vapor Transmission: 50 perms, when tested in accordance with ASTM E96, Method B.
  - c. Water Penetration Resistance: 210 cm when tested in accordance with AATCC Test Method 127.
  - d. Basis Weight: 2.1 oz/yd<sup>2</sup>, when tested in accordance with TAPPI Test Method T-410.
  - e. Air Resistance: 300 seconds, when tested in accordance with TAPPI Test Method T-460.
  - f. Tensile Strength: 30/30 lbs/in., when tested in accordance with ASTM D882, Method A.
  - g. Tear Resistance: 7/9 lbs, when tested in accordance with ASTM D1117.
  - h. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: 5, Smoke Developed: 25
2. Accessories
  - a. Seam Tape: 2 or 3 inch wide, DuPont™ Tyvek® Tape as manufactured by DuPont Building Innovations.
  - b. Fasteners:
  - c. Tyvek® Wrap Caps, as manufactured by DuPont Building Innovations: #4 nails with large 1-inch plastic cap fasteners.
- B. Flashing: Provide aluminum flashing complying with Division 07 Section "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
  1. Finish for Aluminum Flashing: Siliconized polyester coating, same color as siding
- C. Fasteners: Galvanized or corrosion resistant; length as required to penetrate minimum 1-1/4 inch (32 mm).
- D. Joint Sealer: Siliconized acrylic sealant between siding and all other components. ASTM C834, Type OP, Grade 18C; single component, paintable.
  1. Product: RCS20 manufactured by Momentive Performance Materials (formerly GE Silicones).

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Remove existing siding, trim and accessory materials.
- B. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.
- C. Replace damaged existing exterior wall sheathing with prior approval of Construction Manager.
- D. Do not begin until unacceptable conditions have been corrected.
- E. If substrate preparation is the responsibility of another installer, notify Construction Manager of unsatisfactory preparation before proceeding.
- F. Coordinate installation with flashings, windows and other adjoining construction, if applicable, to ensure proper sequencing
- G. Protect surrounding surfaces from damage related to siding work. Provide drop cloths to catch debris and fasteners.

### **3.02 WEATHER BARRIER INSTALLATION**

- A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.
- B. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.
- C. Apply wrap with grooved surface pattern in vertical direction.

- D. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with grooved surface pattern in vertical position. Maintain weather barrier plumb and level.
- E. Extend bottom roll edge over sill plate 2" to 3". Seal weather barrier with sealant or tape. Shingle weather barrier over back edge of weep screed. Seal weather barrier with sealant or tape to weep screed. Ensure weeps are not blocked.
- F. Subsequent layers shall overlap lower layers a minimum of 6 inches horizontally in a shingling manner.
- G. Window and Door Openings: Extend weather barrier completely over openings.
- H. Weather Barrier Attachment:
  - 1. Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, space 12 -18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.
- I. Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.
- J. Seal any tears or cuts as recommended by weather barrier manufacturer.

### **3.03 SIDING AND TRIM INSTALLATION**

- A. Install in accordance with manufacturer's instructions and recommendations.
  - 1. Read warranty and comply with all terms necessary to maintain warranty coverage.
  - 2. Use trim details indicated on drawings.
  - 3. Touch up all field cut edges before installing.
  - 4. Pre-drill nail holes if necessary to prevent breakage.
- B. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.
- C. Do not install siding less than 6 inches (150 mm) from surface of ground nor closer than 1 inch (25 mm) to roofs, patios, porches, and other surfaces where water may collect.
- D. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.

### **3.04 CLEANUP**

- A. Touch-up, repair or replace damaged products before Substantial Completion.
- B. Remove debris related to siding installation work. Rake grounds and use magnetic head to pick up debris and fasteners fallen outside of drop cloths.

**END OF SECTION**

## **SECTION 07 5323**

### **ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING**

#### **PART 1 - GENERAL**

##### **1.01 LOCATIONS**

- A. Provide EPDM roofing system at Front Porch, including flashing to gable end of house and prefinished drip edge at perimeter.

##### **1.02 SECTION INCLUDES**

- A. Adhered EPDM membrane roofing system.

##### **1.03 RELATED REQUIREMENTS**

- A. Section 07 62 00 - Sheet Metal Flashing And Trim: Copings, flashings, counter flashings.

##### **1.04 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Installer Qualifications.
- C. Maintenance data.
- D. Warranty for review by Owner.

##### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
  - 1. Installer must have a minimum of 5 years experience installing the specified manufacturer's product.
- B. Source Limitations: Obtain components including for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.
- C. Exterior Fire-Test Exposure: ASTM E 108, Class C; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

##### **1.06 PROJECT CONDITIONS**

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

##### **1.07 WARRANTY**

- A. Provide a Twenty (20) year no dollar limit (NDL) warranty that excludes the following:
  - 1. Proration Clauses.
  - 2. Penal Sum Limits

#### **PART 2 - PRODUCTS**

##### **2.01 EPDM MEMBRANE ROOFING**

- A. EPDM: ASTM D 4637, Type I, non-reinforced, uniform, flexible EPDM sheet.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Carlisle SynTec Incorporated.
    - b. Verisco Roofing Systems
    - c. Firestone Building Products.
    - d. Substitutions: See Section 01 60 00 - Product Requirements.
  - 2. Thickness: 60 mils (1.5 mm) , nominal.
  - 3. Exposed Face Color: Black.



## **2.02 AUXILIARY MEMBRANE ROOFING MATERIALS**

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
  - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.
- C. Vapor Barrier:
  - 1. Warm Weather Installation - Above 40 deg. F
    - a. Self-Adhering Sheet Underlayment
      - 1) 30 mils (0.76 mm) thick, butyl rubber based adhesive backed by a layer of high density cross laminated polyethylene.
      - 2) Provide manufacturer's recommended primer, as required, if adhesion to deck is found to be marginal.
      - 3) Manufacturers
        - (a) Grace Construction Products, "Grace Ultra"
        - (b) Approved substitution
  - 2. Cold Weather Installation - Below 40 deg. F
    - a. Two layers of Type 4 felt.
      - 1) First layer nailed to plywood roof deck.
      - 2) Second layer hot asphalt mopped to first layer.
- D. Roofing Asphalt: ASTM D312, Type III or IV as recommended by the roofing manufacturer for application.
- E. Protection Sheet: Epichlorohydrin or neoprene non-reinforced flexible sheet, 55- to 60-mil- (1.4- to 1.5-mm-) thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non-aromatic solvents, grease, and oil.
- F. Bonding Adhesive: Manufacturer's standard, water based.
- G. Seaming Material: Single-component, butyl splicing adhesive and splice cleaner or manufacturer's standard, synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.
- H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to roofing system manufacturer.
- I. Miscellaneous Accessories: Provide all accessories required for complete installation following membrane manufacturer's instructions.

## **PART 3 - EXECUTION**

### **3.01 VAPOR BARRIER INSTALLATION**

- A. Install the first layer of felt with nails spaced as required by the manufacturer's written instructions.
- B. Install the second layer of felt using hot mopped asphalt.
- C. Provide side and end laps that meet the roofing manufacturer's minimum requirements.

### **3.02 ADHERED MEMBRANE ROOFING INSTALLATION**

- A. Adhere membrane roofing over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll membrane roofing and allow to relax before installing.
- B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

- C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
- D. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeters.
- E. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping membrane roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of membrane roofing terminations.
- F. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

### **3.03 BASE FLASHING INSTALLATION**

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

### **3.04 FIELD QUALITY CONTROL**

- A. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

### **3.05 DISPOSAL**

- A. Collect and place demolished materials in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Transport and legally dispose of demolished materials off Owner's property.

**END OF SECTION**

**SECTION 07 6200**  
**SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide prefinished aluminum fascia and vented soffit at roof edge on house and Garage.

**1.02 SECTION INCLUDES**

- A. Fabricated sheet metal items, including fascia and soffits.

**1.03 REFERENCE STANDARDS**

- A. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

**1.04 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

**PART 2 PRODUCTS**

**2.01 SHEET MATERIALS**

- A. Pre-Finished Aluminum Soffit, Trim and Facia: ASTM B209 (ASTM B209M); 0.019 inch (\_\_\_\_ mm) thick; plain finish shop pre-coated with modified silicone coating.
  - 1. Manufacturer: Edco.
  - 2. Style: 12" exposure in double 6-inch style vented soffit.
  - 3. Color: As scheduled.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Conform to drawing details.
- B. Secure soffit in place using concealed fasteners. Use exposed fasteners only where permitted.
- C. Fit soffits tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

**END OF SECTION**

**SECTION 07 7123**  
**MANUFACTURED GUTTERS AND DOWNSPOUTS**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide prefinished aluminum gutters, downspouts and downspout extensions on main roof of house.

**1.02 SECTION INCLUDES**

- A. Pre-finished aluminum gutters and downspouts.

**1.03 REFERENCE STANDARDS**

- A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.
- B. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.
- C. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

**1.04 DESIGN REQUIREMENTS**

- A. Conform to applicable code for size and method of rain water discharge.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.032 inch (0.8 mm) thick.
  - 1. Finish: Plain, shop pre-coated with modified silicone coating.
  - 2. Color: Edco, as scheduled.

**2.02 COMPONENTS**

- A. Gutters: K style profile, seamless, one-piece aluminum gutter and guard
- B. Gutter Guard: seamless, one-piece aluminum gutter and guard
- C. Downspouts: SMACNA Rectangular profile.
  - 1. Size: 3X5
- D. Anchors and Supports: Profiled to suit gutters and downspouts.
  - 1. Gutter Supports: Brackets.
  - 2. Downspout Supports: Straps.
- E. Fasteners: Galvanized steel , with soft neoprene washers.

**2.03 ACCESSORIES**

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Where feasible, a minimum of 6' offset extension shall be installed at the ends of all downspouts to divert water away from foundation.
- C. Downspouts shall divert the entire water load in the direction of the rain garden according to the Landscape Plan.

**END OF SECTION**

**SECTION 08 1100**  
**EXTERIOR INSULATED METAL DOORS AND FRAMES**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide new pre-hung metal-clad insulated Front and Rear Entry and Garage service doors and frames.
- B. Provide full hardware set for Front Entry door, Rear Entry door and Garage service door.
- C. Provide storm door for Front and Rear Entry doors.

**PART 2 PRODUCTS**

**2.01 EXTERIOR PREHUNG METAL DOOR**

- A. Front Doors:
  - 1. Product: Mastercraft, Craftsman
- B. Rear/Side Doors:
  - 1. Product: Mastercraft, Half Lite w/ Blinds - LT-10
- C. Garage Service Door:
  - 1. Product: Mastercraft, 6-Panel - E-1

**2.02 ALUMINUM STORM DOORS**

- A. Front Door
  - 1. Product: Larson, Oakley, or approved equivalent
- B. Rear/Side Doors
  - 1. Product: Larson, Oakley, or approved equivalent
- C. Color: White.

**2.03 ACCESSORIES**

- A. DOOR HARDWARE: Door hardware finish to be Aged Bronze
  - 1. Exterior Door Hardware: Schlage model 221-409x

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Examine doors and installed door frames before hanging doors.
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  - 2. Reject doors with defects
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Use an expanding foam to insulate between the door frame and the rough opening.
- C. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.
- D. Align and fit doors in frames with uniform clearances set by manufacturer.
- E. Seal edges of doors, edges of cutouts, and mortises after fitting and machining

**3.03 SYSTEMS INTEGRATION**

- A. Coordinate with low-voltage security contractor to install contacts in door.

**3.04 ADJUSTING**

- A. Adjust Doors for smooth operation.

B. Operation: Rehang or replace doors that do not swing or operate freely.

**END OF SECTION**

## **SECTION 08 1429**

### **WOOD DOORS**

#### **PART 1 GENERAL**

##### **1.01 LOCATIONS**

- A. Provide new 6-panel wood doors to match existing 6-panels doors, pre-hung in wood frame at Bedroom 2 closet, Bathroom and Kitchen-to-Rear Entry doors. Casing included in finish carpentry section.
- B. Provide hardware sets at all new doors.

##### **1.02 SECTION INCLUDES**

- A. Wood doors, stile and rail design.
- B. Frames for pre-hung doors.
- C. Hardware for interior doors.

##### **1.03 QUALITY ASSURANCE**

##### **1.04 DELIVERY, STORAGE, AND HANDLING**

#### **PART 2 PRODUCTS**

##### **2.01 INTERIOR WOOD DOORS**

- A. Quality Level: Premium Grade , in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.
- B. Wood products that Emit Low or No Formaldehyde
- C. Wood products that Emit Low or No VOC
- D. Interior Doors: 1-3/8 inches (35 mm) thick unless otherwise indicated; solid lumber construction; mortised and tenoned joints.
  - 1. Wood: Birch, for field-applied stain finish.
  - 2. Door Type: 6-panel to match existing door style, prehung in solid wood frame where indicated in the door Schedule.

##### **2.02 HARDWARE**

- A. DOOR HARDWARE: Door hardware finish to be Aged Bronze
  - 1. Interior Door Hardware: Schlange Sienna.
  - 2. Privacy Lockset at bathroom.
  - 3. Hinges to match the lockset.
  - 4. Door stop.

##### **2.03 DOOR CONSTRUCTION**

#### **PART 3 EXECUTION**

##### **3.01 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and AWI/AWMAC Quality Standards requirements.
- B. Trim door width by cutting equally on both jamb edges.
- C. Trim door height by cutting bottom edges to a maximum of 3/4 inch (19 mm).
- D. Machine cut for hardware.
- E. Coordinate installation of doors with installation of frames and hardware.

##### **3.02 TOLERANCES**

- A. Conform to specified quality standard for fit, clearance, and joinery tolerances.

**END OF SECTION**

**SECTION 08 5313**  
**VINYL WINDOWS**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide vinyl casement window unit at egress window location in Basement.
- B. Provide vinyl awning windows for new openings on west wall of Living Room.
- C. Provide vinyl double hung windows in Attic.
- D. Provide vinyl sliding window in Garage.

**1.02 SECTION INCLUDES**

- A. Factory fabricated tubular extruded plastic windows with operating sash.
- B. Factory glazed including infill panels.
- C. Operating hardware.
- D. Insect screens.
- E. Perimeter sealant.

**1.03 REFERENCE STANDARDS**

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors; American Architectural Manufacturers Association; 2008.
- B. FS L-S-125 - Screening, Insect, Nonmetallic; Federal Specifications and Standards; Revision B, 1972.

**1.04 PERFORMANCE REQUIREMENTS**

- A. Performance Requirements: Energy Star Rated to meet Minnesota climate conditions. Climate Zone 6 for 2006 IECC, ASHRAE 90.1-2007 and ENERGY STAR.

**PART 2 PRODUCTS**

**2.01 COMPONENTS**

- A. Windows: Extruded, hollow, tubular, ultra-violet resistant polyvinyl chloride (PVC) with integral color; factory fabricated; with insulated, low-e vision glass, related flashings, anchorage and attachment devices.
  - 1. Performance Requirements: AAMA/WDMA/CSA 101/I.S.2/A440 R15.
  - 2. Configuration: outward opening, side hinged, outward opening, top hinged, horizontal sliding, and double hung units.
  - 3. Color: White.
- B. Insect Screen Frame: Rolled aluminum frame of rectangular sections; fit with adjustable hardware; nominal size similar to operable glazed unit.
- C. Insect Screens: Woven aluminum mesh; 14/18 mesh size.
  - 1. Color: Black.
- D. Fasteners: Stainless steel.

**2.02 GLASS AND GLAZING MATERIALS**

**2.03 ACCESSORIES**

- A. Sealant and Insulation: Fiberglass batt insulation and window manufacturer's highest quality recommended sealant. Color to match window exterior color on exterior application.
- B. Flexible Flashing: Flexible rubberized flashing, Tyvek "Flexwrap" peel-and-stick membrane, 70 mils thick, 9" wide.

**2.04 ADHESIVES AND SEALANTS**

- A. VOC content not to exceed the following [g/L; less water and less exempt compounds]:
  - 1. Multipurpose Construction Adhesives: 70 g/L



2. Structural Glazing Adhesives: 100 g/L

## **2.05 HARDWARE**

- A. Horizontal Sliding Sash: Extruded PVC interfacing tracks, limit stops in head and sill track.
- B. Double Hung Sash: Metal and nylon spiral friction slide cylinder, each sash, each jamb.
- C. Projecting Sash Arms: Cadmium plated steel, friction pivot joints with nylon bearings, removable pivot clips for cleaning.
- D. Sash lock: Lever handle with cam lock.
- E. Finish For Exposed Hardware: white baked enamel.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

### **3.02 INSTALLATION**

- A. Mock-up: Install job mock-up of window installation with flashing and procedures as outlined in WINDOW INSTALLATION SEQUENCE IN DRAWINGS. Obtain Construction Manager's approval of system for appearance and workmanship standard before proceeding with installing additional windows.
- B. Preparation: Prepare exterior sheathing and opening with air barrier and flashing as described in WINDOW FLASHING SEQUENCE on Drawings. Verify that size of rough opening vertically and horizontally is sufficient to allow for window unit, air barrier, flashings, shims, window anchorage accessories, chinking and sealant, etc. as described in the WINDOW FLASHING SEQUENCE and per window manufacturer's requirements.
- C. Installation: Comply with manufacturer's instructions. Set sash units plumb, level, and true to line, without warp or rack of frames and panels. Provide support and anchor tracks securely in place. Provide flashings, chinking and sealant as described in WINDOW FLASHING SEQUENCE in Drawings. Insulate any voids between the window frame and the rough opening with foam insulation.
- D. Adjust operating sashes, screens, and hardware for a tight fit at contact points and weatherstripping for smooth operation and weathertight closure.

### **3.03 ADJUSTING**

- A. Adjust hardware for smooth operation and secure weathertight closure.

### **3.04 CLEANING**

- A. Remove protective material from pre-finished surfaces.
- B. Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.
- C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

**END OF SECTION**

**SECTION 09 0120**  
**REPAIR OF PLASTER AND GYPSUM BOARD SURFACES**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Patch water damaged plaster wall surface in Bedroom 1, approximately 16 s.f. area.
- B. Patch hole in Bedroom 1 closet wall, approximately 2 s.f. area.
- C. Patch all Kitchen walls.
- D. Provide up to 6 hours of additional miscellaneous plaster patching throughout the house.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Patching and Skim Coating Compound: Job-site or ready-mixed drywall joint compound.
- B. Lath or Backer Board: Regular type gypsum board, in thickness required by depth of patch.
- C. Caulking: Paintable, flexible caulking for bridging gaps and cracks less than 1/4" wide at inside corners.

**2.02 ACCESSORIES**

- A. Plastic Tarps.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Protection of In-Place Conditions: Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- B. Provide protection for surrounding floors, surfaces, and areas to control dust and debris. Seal room openings in area of work with 6 mil poly sheeting. Protect surfaces at openings from damage by tape. Cover all vent and plumbing openings. Spray mist plaster areas to be disturbed and removed just prior to removal to control dust. Remove all loose and damaged plaster back to sound material. Provide gypsum board lath to fill maximum extent of repair area and provide base coat for veneer plaster. Screw gypsum board to structure, providing blocking if necessary.

**3.02 REPAIR**

- A. Walls and Ceilings: Repair interior surface(s) so that finish surface is smooth, even and properly prepared for finish application.
  - 1. Apply veneer plaster or drywall joint compound to repair area, meeting edges of existing plaster. Sand smooth and reapply until surface of patch appears continuous with existing wall surface.

**3.03 CLEANING**

- A. Remove and dispose of all debris and poly barriers related to plaster patch work.

**END OF SECTION**

**SECTION 09 0160**  
**HARDWOOD FLOORING RESTORATION**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Refinish wood strip flooring in Living room, Dining room, Bedroom 1 and Bedroom 2. Fill tack strip holes and replace damaged areas with new material to match existing.

**1.02 RELATED SECTIONS**

- A. See Section 01 6116 Volatile Organic Compound Content Restriction.

**1.03 1.3 QUALITY ASSURANCE**

- A. A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project for at least 10 years.
- B. Prepare a 5' x 5' mock-up area at the project site, using specified products and manufacturer's approved installation methods. Obtain Construction Manager's acceptance of finish color, texture and workmanship standard before proceeding with full scope of work.

**PART 2 PRODUCTS**

**2.01 WOOD FLOORING FINISH**

- A. Urethane Finish System: Complete water-based system of compatible components that is recommended by finish manufacturer for application indicated.
  - 1. Manufacturer: Provide GREENGUARD certified finish system by the following:
    - a. BonaKemi USA Inc.
  - 2. Wood Filler: Bona Pacific Filler, in color that most closely matches wood species color.
  - 3. Sealer: Bonaseal wood floor sealer.
  - 4. Finish: Bona Traffic waterborne polyurethane wood floor finish. Finish color to be selected from manufacturer's full range of standard finishes. Different colors may be selected for different buildings.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Verify that existing wood flooring is acceptable for refinishing. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Protect adjacent surfaces and areas from damage during product installation.
- C. Provide highly effective dust control measures to prevent migration of sanding dust into any area outside of the refinish area.
- D. Vacuum exposed floors.
- E. Provide sealed poly dust curtains at room openings to prevent migration of dust to other areas of the house.

**3.02 REPAIRS**

- A. Cut out damaged wood flooring to nearset end joint and replace with new wood flooring strips securely fastened with fully concealed fasteners. Do not allow any short ends less than 24" long to remain in place after cutting out damaged sections. Fill voids greater than 1/8" in width in existing floor with wood filler.

**3.03 FLOOR SANDING**

- A. Sand and prepare floor with equipment that is operated using the GREENGUARD-certified Bona Atomic Dust Containment System.
- B. Sand flooring in three steps, using coarse, medium and fine grit sandpaper. Use hand held sander for floor edges and areas around radiators. Protect existing base trim and shoe moulding from sanding damage. Clean and vacuum between sanding steps. Resulting floor surface shall be smooth and uniform, with no apparent sanding marks or divets.

- C. Fill open-grained hardwood. Fill and repair wood flooring seams and defects over 1/8" wide or large. Vacuum entire surface and clean with a tack cloth immediately before applying finish.

#### **3.04 FIELD-APPLIED FINISH**

- A. Apply floor-finish materials in number of coats recommended by finish manufacturer for application indicated, but not less than one coat of floor sealer and two finish coats.
  - 1. For water-based finishes, use finishing methods recommended by finish manufacturer to minimize grain raise.

#### **3.05 PROTECTION**

- A. Protect installed wood flooring during remainder of construction period with covering of heavy kraft paper or other suitable material. Do not use plastic sheet or film that might cause condensation.
  - 1. Do not move heavy and sharp objects directly over kraft-paper-covered wood flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.
- B. Remove poly curtains and all debris related to floor installation and refinishing work upon completion of the work.
- C. Repair or replace damaged installed products or surface areas prior to substantial completion.
- D. After installation of flooring, maintain relative humidity and ambient temperature planned for building occupants.

**END OF SECTION**

**SECTION 09 2116**  
**GYPSUM BOARD INSTALLATION**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide finished drywall surface at underside of new raised floor in north closet in Bedroom 2 to increase the Basement stairway headroom opening.
- B. Provide gypsum drywall ceiling and wall surfaces at Rear Entry.
- C. Provide water-resistant drywall at Bathroom ceiling and walls except at tub surround walls.
- D. Provide water-resistant drywall at new partition in Basement.

**1.02 SECTION INCLUDES**

- A. Gypsum wallboard.
- B. Joint treatment and accessories.

**1.03 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.04 REFERENCE STANDARDS**

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).
- B. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2008.
- C. ASTM C1288 - Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets; 1999 (Reapproved 2010).
- D. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.
- E. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.

**PART 2 PRODUCTS**

**2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
  - 1. See PART 3 for finishing requirements.

**2.02 BOARD MATERIALS**

- A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
  - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
  - 2. Thickness:
    - a. Vertical Surfaces: 1/2 inch (13 mm).
    - b. Ceilings: 1/2 inch (13 mm).
- B. Backing Board For Wet Areas: One of the following products:
  - 1. Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.
  - 2. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288.
    - a. Thickness: 1/2 inch (12.7 mm).
    - b. Products:
      - 1) James Hardie Building Products, Inc; Hardibacker Cement Board.

**2.03 ACCESSORIES**

- A. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
  - 1. Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.

2. Ready-mixed vinyl-based joint compound.
3. Powder-type vinyl-based joint compound.
4. Chemical hardening type compound.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.

#### **3.02 BOARD INSTALLATION**

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

#### **3.03 JOINT TREATMENT**

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

## SECTION 09 3000

### TILING

#### PART 1 GENERAL

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##### 1.01 LOCATIONS

- A. Provide tile backer board and full height ceramic tile finish at bathtub surround walls.
- B. Provide tile underlayment and ceramic tile flooring and base trim in Bathroom.

##### 1.02 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Cementitious backer board as tile substrate.
- D. Stone thresholds.
- E. Ceramic accessories.

##### 1.03 REFERENCE STANDARDS

- A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2009.
- B. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 2010.
- C. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (R2005).
- D. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.
- E. TCNA (HB) - Handbook for Ceramic Tile Installation; 2011.

##### 1.04 ALLOWANCES

- A. Allowances for Tile of \$3.00 per square foot.

##### 1.05 QUALITY ASSURANCE

- A. Maintain one copy of The Tile Council of North America Handbook and ANSI A108 Series/A118 Series on site.

##### 1.06 FIELD CONDITIONS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

#### PART 2 PRODUCTS

##### 2.01 TILE

- A. Ceramic Mosaic Floor Tile : ANSI A137.1 , and as follows:
  - 1. Manufacturer: American Olean Colorbody Mosaic.
  - 2. Size and Shape: [].
  - 3. Edges: Square.
  - 4. Surface Finish: Unglazed.
  - 5. Colors: Two color pattern, Salt and pepper (1x2) and Black (1x1).
- B. Glazed Wall Tile Type Ceramic: ANSI A137.1 , and as follows:
  - 1. Manufacturer: American Olean Profiles Glazed Ceramic Tile
  - 2. Size and Shape: 3x6 (rectangular).
  - 3. Edges: Cushioned.
  - 4. Surface Finish: High gloss.
  - 5. Colors: White.
  - 6. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.

## **2.02 TRIM AND ACCESSORIES**

- A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.
  - 1. Soap Dish: With handle, clam shell design, recess mounted; cast strength sufficient to resist lateral pull force of 75 lbs (34 Kg).
- B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
  - 1. Applications: Use in the following locations:
    - a. Open Edges: Bullnose.
    - b. Inside Corners: Jointed.
    - c. Floor to Wall Joints: Cove base.
  - 2. Manufacturer: Same as for tile.
- C. Thresholds: Marble, white or gray, honed finish; 2 inches (50 mm) wide by full width of wall or frame opening; 1/2 inch (12 mm) thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.
  - 1. Applications: Provide at the following locations:
    - a. At doorways where tile terminates.
    - b. At open edges of floor tile where adjacent finish is a different height.

## **2.03 SETTING MATERIALS**

- A. Mortar Bond Coat Materials for Thin-Set Installations:

## **2.04 GROUTS**

- A. Standard Grout: Any type specified in ANSI A118.6 or A118.7.

## **2.05 THIN-SET ACCESSORY MATERIALS**

- A. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glass fiber reinforced, 1/2 inch (13 mm) thick; 2 inch (50 mm) wide coated glass fiber tape for joints and corners.
- B. Mesh Tape: 2-inch (50 mm) wide self-adhesive fiberglass mesh tape.

# **PART 3 EXECUTION**

## **3.01 PREPARATION**

- A. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.

## **3.02 INSTALLATION - GENERAL**

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Install thresholds at Bathroom doorways.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- J. Allow tile to set for a minimum of 48 hours prior to grouting.
- K. Grout tile joints. Use standard grout unless otherwise indicated.



- L. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

### **3.03 INSTALLATION - FLOORS - THIN-SET METHODS**

- A. Over wood substrates, install in accordance with The Tile Council of North America Handbook Method F142, with standard grout, unless otherwise indicated.
  - 1. Where epoxy bond coat and grout are indicated, install in accordance with The Tile Council of North America Handbook Method F143.
- B. Over wood substrate with backer board underlayment, install in accordance with The Tile Council of North America Handbook Method F144, for cementitious backer boards, with standard grout.

### **3.04 INSTALLATION - SHOWERS AND BATHTUB WALLS**

- A. At tiled shower receptors install in accordance with The Tile Council of North America Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.
- B. At bathtub walls install in accordance with The Tile Council of North America Handbook Method B412, over cementitious backer units with waterproofing membrane.
- C. Grout with standard grout as specified above.
- D. Seal joints between tile work and other surfaces in Bathrooms with silicone sealant, color to match tile.

### **3.05 CLEANING**

- A. Clean tile and grout surfaces.

### **3.06 PROTECTION**

- A. Do not permit traffic over finished floor surface for 4 days after installation.

**END OF SECTION**

**SECTION 09 6500**  
**RESILIENT FLOORING**

**PART 1 GENERAL**

**1.01 LOCATIONS**

- A. Provide one layer of underlayment and Marmoleum linoleum sheet flooring at Kitchen and Rear Entry area, including the area surrounding the Basement stairway opening.

**1.02 SECTION INCLUDES**

- A. Resilient sheet flooring.
- B. Installation accessories.

**1.03 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.04 REFERENCE STANDARDS**

- A. ASTM F2034 - Standard Specification for Sheet Linoleum Floor Covering; 2008.

**1.05 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F (13 degrees C) and 90 degrees F (72 degrees C).
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F (21 degrees C) to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F (13 degrees C).

**PART 2 PRODUCTS**

**2.01 SHEET FLOORING**

- A. Linoleum Sheet Flooring: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness:
  - 1. Minimum Requirements: Comply with ASTM F2034, Type corresponding to type specified.
  - 2. Backing: Jute fabric.
  - 3. Wear Layer Thickness: 0.080 inch (2.0 mm), minimum, excluding backing.
  - 4. Pattern: Solid color.
  - 5. Color: As scheduled.
  - 6. Seams: Heat welded.
  - 7. Manufacturers:
    - a. Forbo Linoleum, Inc; Product \_\_\_\_: [www.forbo-industries.com](http://www.forbo-industries.com).
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- B. Linoleum Welding Rod: Solid color linoleum produced by flooring manufacturer for heat welding seams, in color in color matching predominant flooring color.

**2.02 ACCESSORIES**

- A. Moldings, Transition and Edge Strips: Same material as flooring.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

**3.02 PREPARATION**

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

**3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.

- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

#### **3.04 SHEET FLOORING**

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns carefully at seams.
- B. Double cut sheet at seams.
- C. Lay flooring with tightly butted seams, without any seam sealer unless otherwise indicated.
- D. Finish seams in linoleum by heat welding.

#### **3.05 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.

#### **3.06 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**

**SECTION 09 9000**  
**PAINTING AND COATING**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Paint all exterior fibercement siding and trim.
- B. Paint Front Porch trim, columns, railing and soffit.
- C. Stain and seal decking at Front Porch, porch steps and Rear Entry stoop and steps.
- D. Paint all walls and ceilings on first floor, except porcelain tile panels at Kitchen ceiling and soffit to remain unpainted. Paint closets same as adjacent rooms. Paint previously painted closet rod and shelving.
- E. Lightly sand and refinish all existing wood trim, including high base trim, cased openings, window and door casings and frames in Living room, Dining room, Bedroom 1 and Bedroom 2 and 6-panel doors in Bedroom 1 and Bedroom 2. Remove all traces of paint brush marks from all stained wood trim. Fill holes in trim from window treatment hardware.
- F. Stain and finish all new interior wood doors, frames, base trim, base shoe and casings to match existing stain color in Living room.
- G. Paint all previously-painted wood columns in Basement. White painted columns are identified as having lead-containing finish.

**1.02 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Surfaces to be finished are indicated in this section and on the Drawings.
- D. Joint sealants.

**1.03 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.04 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, [www.paintinfo.com](http://www.paintinfo.com).
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Master Painters and Decorators Association; 2004.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

**1.06 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Paints and Coatings: Sherwin Williams Low VOC or any manufacturer listed in MPI Approved Products List (at [www.paintinfo.com](http://www.paintinfo.com)) approved by Project Manager.
  - 1. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
  - 2. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- B. Stains: Minwax Low VOC or any other manufacturer approved by Project Manager

### **2.02 MATERIALS - GENERAL**

- A. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. Flat: 50 grams/Liter
    - b. Non-Flat: 50 grams/Liter
    - c. Floor Coating: 100 grams/Liter
    - d. Anti-Corrosive: 250 grams/Liter
  - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

### **2.03 PAINT SYSTEMS**

- A. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.
- B. Where a specified paint system does not have a Premium Grade, provide Custom Grade system.
- C. Where sheen is not specified or more than one sheen is specified, sheen will be selected later by Construction Manager from the manufacturer's full line.
- D. Provide smooth texture throughout.

### **2.04 EXTERIOR PAINT SYSTEMS**

- A. Cementitious Composition Board:
  - 1. \_\_\_\_\_: EXT 3.3A Latex: Latex MPI #10, 11, 15 or 119.
- B. Dressed Lumber:
  - 1. \_\_\_\_\_: EXT 6.3A Latex: Oil/Alkyd Primer MPI #5 or #7, Latex MPI #10, 11, 15 or 119.
- C. Wood Traffic Surfaces:
  - 1. Applications include but are not limited to Decks, Steps, and Porch floor.
  - 2. EXT 6.5D Deck Stain: Wood Preservative MPI #37, Deck Stain MPI #33.

### **2.05 INTERIOR PAINT SYSTEMS**

- A. Dressed Lumber:
  - 1. Applications include but are not limited to doors, door frames, window frames, window casings, trim, baseboards, and moldings.
  - 2. \_\_\_\_\_: INT 6.3A High Performance Architectural Latex: Latex Primer MPI #39, HIPAC Latex MPI #138, 139, 140 or 141.
    - a. \_\_\_\_\_: Gloss level 2.
  - 3. \_\_\_\_\_: INT 6.3C Semi-Transparent Stain: Wood Stain MPI #90.
  - 4. \_\_\_\_\_: INT 6.3E Polyurethane Varnish (over stain): Wood Stain MPI #90, Polyurethane Varnish MPI #56 or 57.
    - a. Fill open grain with wood filler paste MPI #91 before finishing.
    - b. \_\_\_\_\_: Satin.
- B. Plaster and Gypsum Board:

1. Applications include but are not limited to walls, ceilings, soffits, and bulkheads.
2. \_\_\_\_\_: INT 9.2A Latex: Latex Primer Sealer MPI #50, Latex #43, 44, 52, 53, 54 or 114.
3. \_\_\_\_\_: INT 9.2B High Performance Architectural Latex: Latex Primer Sealer MPI #50, HIPAC Latex MPI #138, 139, 140 or 141.
  - a. \_\_\_\_\_: Gloss level 2.
  - b. \_\_\_\_\_: Gloss level 3 at Kitchen and Bathrooms.

## **2.06 JOINT SEALANTS**

- A. Exterior sealants:
  1. Silicone, ASTM C920, Grade NS, Class 100/50, Uses M, G, O, and A; single component.
    - a. Product:
    - b. Color: Match adjacent finished surfaces.
    - c. Use for:
      - 1) Joints between concrete and other materials.
      - 2) Joints between metal frames and other materials.
      - 3) Joints between doors and windows and other materials.
      - 4) Other exterior joints for which no other sealant is indicated.
- B. Interior sealants:
  1. Paintable silicone, ASTM C920, Type S, Grade NS, Class 25, Uses G, A, & O.
    - a. Product: GE Silicone II manufactured by Momentive Performance Materials, Inc.
    - b. Use for vertical surfaces and horizontal non-traffic surfaces:
      - 1) Perimeter joints of exterior openings.
      - 2) Horizontal joints between kitchen countertops/backsplash and gypsum board walls.
      - 3) Horizontal joints between window sills and jamb / head extensions.
      - 4) Other interior joints for which no other type of sealant is indicated.

## **PART 3 EXECUTION**

### **3.01 SCOPE -- SURFACES TO BE FINISHED**

- A. Paint all exposed surfaces except where indicated not to be painted or to remain natural; the term "exposed" includes areas visible through permanent and built-in fixtures when they are in place.
- B. Paint the surfaces described in PART 2 and as follows:
  1. If a surface, material, or item is not specifically mentioned, paint in the same manner as similar surfaces, materials, or items, regardless of whether colors are indicated or not.
  2. Paint surfaces behind movable equipment and furnishings the same as similar exposed surfaces.
  3. Paint surfaces to be concealed behind permanently installed fixtures, equipment, and furnishings, using primer only, prior to installation of the permanent item.
  4. Paint back sides of access panels and removable and hinged covers to match exposed surfaces.
- C. Do Not Paint or Finish the Following Items:
  1. Items fully factory-finished unless specifically noted; factory-primed items are not considered factory-finished.
  2. Items indicated to receive other finish.
  3. Items indicated to remain naturally finished.
  4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.

### **3.02 EXAMINATION**

- A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

- C. Test shop-applied primer for compatibility with subsequent cover materials; report incompatible primer conditions and submit recommended changes for Construction Manager's approval.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Plaster and Gypsum Board: 12 percent.
  - 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
  - 3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

### **3.03 PREPARATION**

- A. Prepare surfaces as specified in MPI Architectural Painting Specification Manual and as follows for the applicable surface and coating; if multiple preparation treatments are specified, use as many as necessary for best results; where the Manual references external standards for preparation (e.g. SSPC standards), prepare as specified in those standards; comply with coating manufacturer's specific preparation methods or treatments, if any.
- B. Coordinate painting work with cleaning and preparation work so that dust and other contaminants do not fall on newly painted, wet surfaces.
- C. Surface Appurtenances: Prior to preparing surfaces or finishing, remove electrical plates, hardware, light fixtures, light fixture trim, escutcheons, machined surfaces, fittings, and similar items already installed that are not to be painted.
  - 1. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before preparation and finishing.
  - 2. After completing painting in each space or area, reinstall items removed using workers skilled in the trades involved.
- D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- E. Marks: Seal with shellac those which may bleed through surface finishes.
- F. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- I. Interior Wood Items to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- J. Interior Wood Items to Receive Transparent Finish: Sand wood to obtain a uniform appearance before immediately starting work. Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

### **3.04 APPLICATION**

- A. Apply products in accordance with manufacturer's instructions and as specified or recommended by MPI Manual, using the preparation, products, sheens, textures, and colors as indicated.
  - 1. Remove, refinish, or repaint work not complying with requirements.
- B. Do not apply finishes over dirt, rust, scale, grease, moisture, scuffed surfaces, or other conditions detrimental to formation of a durable coating film; do not apply finishes to surfaces that are not dry.
- C. Use applicators and methods best suited for substrate and type of material being applied and according to manufacturer's instructions.

1. Brush Application: Use brushes best suited for the type of material applied; use brush of appropriate size for the surface or item being painted; produce results free of visible brush marks.
  2. Roller Application: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
  3. Spray Application: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
  4. Where application method is listed in the MPI Manual for the paint system that application method is required; otherwise any application method recommended by manufacturer for material used and objects to be painted is acceptable.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate; provide total dry film thickness of entire system as recommended by manufacturer.
1. Number of coats and film thickness required are the same regardless of application method.
  2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.
  3. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive dry film thickness equivalent to that of flat surfaces.
- E. Apply finish to completely cover surfaces with uniform appearance without brush marks, runs, sags, laps, ropiness, holidays, spotting, cloudiness, or other surface imperfections.
- F. Before applying finish coats, apply a prime coat of material recommended by manufacturer, unless the surface has been prime coated by others; where evidence of suction spots or unsealed areas in first coat appear, recoat primed and sealed surfaces to ensure finish coat with no burn through or other defects due to insufficient sealing.
- G. Apply first coat to surface that has been cleaned, pretreated, or otherwise prepared as soon as practical after preparation and before subsequent surface deterioration.
- H. Do not apply succeeding coats until the previous coat has cured as recommended by manufacturer.
- I. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat will not cause the undercoat to lift or lose adhesion.
- J. If manufacturer's instructions recommend sanding to produce a smooth, even surface, sand between coats.
- K. Before applying next coat vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

### **3.05 CLEANING AND PROTECTION**

- A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from site.
- C. Protect other work, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting as approved by Construction Manager.
- D. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in MPI Manual.

### **3.06 SCHEDULE - COLORS**

#### **END OF SECTION**



**SECTION 10 5623**  
**CLOSET STORAGE SHELVING**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide closet rod and shelving in all closets except Bedroom 2 closet with Attic access panel to retain existing rod and shelving.

**1.02 SECTION INCLUDES**

- A. Wall mounted wire closet shelving.
- B. Accessories.

**PART 2 PRODUCTS**

**2.01 SHELVING APPLICATIONS**

- A. Shelf Depth: 12 inches (305 mm), unless otherwise indicated.
- B. Bedroom Closets:
  - 1. Wall-to-wall shelf with free sliding hanger rod.
  - 2. Not less than 4 feet (1.25 m) of shoe shelf.

**2.02 MATERIALS**

- A. Wire Shelving: Factory-assembled coated wire mesh shelf assemblies for wall-mounting, with all components and connections required to produce a rigid structure that is free of buckling and warping.
  - 1. Construction: Cold-drawn steel wire with average tensile strength of 100,000 psi (690 MPa) resistance welded into uniform mesh units, square, rigid, flat, and free of dents or other distortions, with wires trimmed smooth.
  - 2. Coating: PVC or epoxy, applied after fabrication, covering all surfaces.
  - 3. PVC Coating: 9 to 11 mils (0.23 to 0.028 mm) thick.
  - 4. Epoxy Coating: Non-toxic epoxy-polyester powder coating baked-on finish, 3 to 5 mils (0.76 to 1.27 mm) thick.
  - 5. Standard Mesh Shelves: Cross deck wires spaced at 1 inch (25.4 mm).
  - 6. Shelf and Rod Units: Integral hanging rod at front edge of shelf.
  - 7. Free-Sliding Hanging Rod: Integral hanging rod that permits uninterrupted sliding of hangers the full width of the shelf.
  - 8. Shoe Shelves: Same wire spacing as standard mesh shelves; angled wall brackets; upturned front lip.
- B. Mounting Hardware: Provide manufacturer's standard mounting hardware; include support braces, wall brackets, back clips, end clips, poles, and other accessories as required for complete and secure installation; factory finished to match shelving.
- C. Fasteners: As recommended by manufacturer for mounting substrates.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions, with shelf surfaces level.
- B. Cap exposed ends of cut wires.
- C. Install back clips, end clips at side walls, and support braces at open ends. Install intermediate support braces as recommended by manufacturer.
- D. Mounting Heights:
  - 1. Single Hanging Rod Units: Install shelf at 68 inches (1727 mm) above floor.
  - 2. Double Hanging Rod Units: Install shelves at 42 inches (1067 mm) and 84 inches (2134 mm) above floor.
  - 3. Shoe Shelves: Front edge at 4 inches (200 mm) above floor.

**END OF SECTION**

**SECTION 10 7446**  
**WINDOW WELLS**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide egress window well at Basement window on east elevation.

**PART 2 PRODUCTS**

**2.01 MANUFACTURER**

- A. Product: St. Paul Corrugating Lux-Right AreaWalls, Economy Grade, or like product approved by Construction Manager or Project Manager.
- B. Manufactured from 18 gauge, pre-galvanized, regular spangle steel sheets.
- C. Limitations: Care should be used in selecting the style and grade of larger and deeper window wells, which should be specified in heavier gauge and properly supported during backfill and while other construction activity is taking place.

**2.02 ACCESSORIES**

- A. Fasteners: Use masonry nails, self-drilling anchors or other approved fasteners..

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Excavate to required depth and area for new window well. Bottom of excavation shall be 12" below window sill and sloped away from foundation wall at 1/4" per foot minimum.
- B. Install in accordance with manufacturer's instructions. Set window well unit tight to wall.
- C. Window wells should be extended beyond the rough opening for the window by at least 6". Some building codes will require additional clearance.
- D. Top of the window wells should be 2" above the established grade line and down at least 12" below the windowsill.
- E. Backfill with excavated soils. Finish grade smoothly with excavated or new topsoils to meet surrounding existing grades. Provide a 6" deep layer of drainage gravel fill in bottom of excavation in window well. Remove surplus soil from the site.

**END OF SECTION**

**SECTION 11 3100**  
**HRA RESIDENTIAL APPLIANCES**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Laundry appliances are pre-purchased and include: Energy Star washer and gas dryer.
- B. Kitchen appliances are pre-purchased and include Energy Star refrigerator, microwave range hood, Energy Star dishwasher, gas range.

**1.02 SECTION INCLUDES**

- A. Kitchen appliances.
- B. Laundry appliances.

**1.03 SUMMARY**

- A. All appliances must be purchased new and Energy Star certified or high efficiency models when Energy Star certification is not possible.
- B. All appliances must meet the Sustainable Design Requirements covered in Section 018113

**1.04 PRICE AND PAYMENT PROCEDURES**

- A. Appliances have been pre-purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
  - 1. Vendor: All, Inc. Appliances

**1.05 QUALITY ASSURANCE**

- A. Electric Appliances: Listed and labeled by UL and complying with NEMA standards.
- B. Gas Appliances: Bearing design certification seal of AGA.

**PART 2 PRODUCTS**

**2.01 KITCHEN APPLIANCES**

- A. Refrigerator: Frigidaire FFHT2126LS/K Energy Star Rated 21 cu ft top mounted refrigerator, stainless steel, with icemaker.
- B. Range: Frigidaire FFGF3053LS 30" Free-standing Gas Range, Self Clean, Clock.
- C. Microwave/Hood: Frigidaire FFMV162LS Over the Range Micro/Hood, vented to exterior, stainless steel.
- D. Dishwasher: Frigidaire FGHD2433KF Energy Star 24" Built-in Dishwasher, including dishwasher cord, stainless steel.

**2.02 LAUNDRY APPLIANCES**

- A. Washer: Frigidaire FAFW3801LW Energy Star Residential Front Load Washer.
- B. Dryer: Frigidaire FAQG7001LW Residential Gas Dryer.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. All appliances shall be uncrated, cleaned and readied for use.
- B. Installation shall include all cord attachments, wiring, plumbing as gas hook ups necessary for appliance operation.
- C. Install in accordance with manufacturer's instructions.
- D. Anchor built-in equipment in place.

**END OF SECTION**

**SECTION 12 1110**  
**HRA MAIL BOX AND HOUSE NUMBERS**

**PART 1 GENERAL**

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**1.01**

- A. Provide wall-mounted mail box adjacent to front entry door.
- B. Provide three-digit house numbers at front porch and alley side of garage.

**PART 2 PRODUCTS**

**2.01 APPLICATIONS**

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

**SECTION 12 1111  
BATHROOM FURNISHINGS**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide Bathroom accessories consisting of: shower curtain rod, toilet paper holder, 2-24" towel bars and towel ring.

**PART 2 PRODUCTS**

**2.01 TOWEL BARS**

- A. Install a metal bath set comprised of two 24" towel bars, towel ring and toilet paper holder.
- B. Manufacturer: Saga Series Toilet Accessories
  - 1. Hand Towel Ring: Model # DN6886xx
  - 2. Towel Bar: Model # DN6818xx
  - 3. Toilet Paper Holder: Model # DN6808xx
- C. Brushed nickel finish to match faucet.

**2.02 MEDICINE CABINET**

- A. Install a medicine cabinet with hinged plate glass mirror and two shelves over the sink.
- B. Manufacturer: Pace, Meadowood Maple. Model # SMC-2530

**2.03 SHOWER CURTAIN ROD**

- A. Install a shower curtain rod using wall anchors.
- B. Manufacturer: Moen, Adjustable Shower Rod. Model # DN2160xx.
- C. Brushed nickel finish to match faucet.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

**END OF SECTION**

**SECTION 12 3530**  
**RESIDENTIAL CASEWORK**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide Kitchen cabinets and countertop in configuration as indicated on the Drawings.
- B. Provide Bathroom vanity cabinet and cultured marble vanity top.
- C. Provide toilet topper cabinet in Bathroom.

**1.02 SECTION INCLUDES**

- A. Kitchen countertops.
- B. Kitchen cabinets.
- C. Vanity cabinets.
- D. Vanity countertops.
- E. Casework hardware.
- F. Toilet topper cabinet.

**1.03 REFERENCE STANDARDS**

- A. ANSI/KCMA A161.1 - Performance and Construction Standard for Kitchen and Vanity Cabinets; Kitchen Cabinet Manufacturers Association; 2000 (R2006).

**1.04 QUALITY ASSURANCE**

- A. Products: Complying with KCMA A161.1 and KCMA Certified.

**PART 2 PRODUCTS**

**2.01 MANUFACTURER**

- A. The HRA has approved Shrock Select, Medallion or Mid-Continent.

**2.02 COMPONENTS**

- A. See Product Selection Sheet for cabinet style and finish.
- B. Bathroom Vanity Cabinet: Single 36 inch Vanity Cabinet.
- C. Cabinet Construction: Plywood sides and bases.
- D. Kitchen Countertop: Post formed plastic laminate over particle board, coved to back splash.
  - 1. Side Splash: Plastic laminate over particle board, square internal intersections to back splash and top surface, contoured to suit counter top profile.
  - 2. Manufacturer: WilsonArt, Desert Springs: 4904
- E. Door and Drawer Fronts: Solid wood.
- F. Drawer Box Construction: Plywood with dovetail joinery

**2.03 HARDWARE**

- A. Hardware: See product selection sheet.

**2.04 FABRICATION**

- A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
- B. Fabricate corners and joints without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.
- C. Form smooth edges. Form material for countertops, shelves, and drain boards from continuous sheets.
- D. Provide cutouts for plumbing fixtures, appliances, and fixtures and fittings. Prime paint contact surfaces of cut edges.

- E. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.
- F. Provide finished end panels on cabinet sides exposed to view.

## **2.05 FINISHES**

- A. Exposed to View Surfaces: Stain, seal, and varnish as listed in Color & Material selections.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install casework, components and accessories in accordance with manufacturer's instructions.
- B. Set casework items plumb and square, securely anchored to building structure.

### **3.02 ADJUSTING**

- A. Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

**END OF SECTION**

**SECTION 22 3000**  
**PLUMBING EQUIPMENT**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide power-vented water heater with an EF of .65 or greater in Basement. Include pressure and temperature release valve, discharge tube to within 6" of floor and PVC flue to power vent to exterior wall in code compliant location.

**1.02 SUBMITTALS**

- A. Product Data:
  - 1. Provide Owner's Manuals for all equipment.

**PART 2 PRODUCTS**

**2.01 RESIDENTIAL INDIRECT-FIRED WATER HEATER**

- A. GENERAL REQUIREMENTS
  - 1. Hot water tank shall be designed for production of domestic hot water using natural gas as heating source.
  - 2. 40 gallon capacity.
- B. MANUFACTURER: A. O. Smith or like product approved by Project Manager.
  - 1. Hot water tank shall have ETL certification.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.
- B. Coordinate with plumbing piping and related fuel piping work to achieve operating system.
- C. Hot water tank shall be installed by a heating contractor whose principal occupation is the sale and installation of plumbing, heating, and or air conditioning equipment and shall be installed in compliance with all applicable codes.
- D. Provide water & gas supply & flue piping.
- E. Provide venting to exterior sidewall in code-compliant location.

**END OF SECTION**



**SECTION 22 4000**  
**PLUMBING FIXTURES AND PIPING**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide all new plumbing supply, waste and vent piping system throughout the house.
- B. Provide water meter, raised to a minimum 12 inches above floor.
- C. Provide two exterior frost-proof hose bibs, one on north foundation wall and one on east foundation wall near front corner of house.
- D. Provide approved lever handle manual building shutoff gas valve in an accessible location ahead of the first branch tee.
- E. Conduct witnessed pressure test on gas piping system.
- F. Provide gas piping and shutoff valve for gas dryer in new wall in Basement.
- G. Provide gas piping and shutoff valve for gas range in Kitchen.
- H. Provide utility tub in new location in Basement.
- I. Provide washing machine wall box with supply and drain piping and shut-offs, in new wall in Basement.
- J. Provide bathtub, toilet, tub/shower fixtures and vanity faucet in Bathroom.
- K. Provide sink and faucet in Kitchen.
- L. Install dishwasher in Kitchen. Dishwasher is pre-purchased.
- M. Provide water line from Kitchen sink to refrigerator for icemaker. Run tubing concealed in wall or floor.

**1.02 REFERENCE STANDARDS**

- A. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2005.
- B. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R2004).
- C. ASME A112.19.14 - Six Liter Water Closets Equipped with Dual Flushing Device; 2006.

**PART 2 PRODUCTS**

**2.01 SINKS AND FAUCETS**

- A. Kitchen Sink: Remove existing sink to code legal dump.
  - 1. Sink: Install a 22 gauge 33"x22"x8" double bowl, stainless steel, self rimming kitchen sink. Manufacturer: Moen, Model number 2212, or like product to be approved by Project Manager
  - 2. Faucet: Manufactured by Moen, Model 7825 or like product to be approved by Project Manager
    - a. Flow Rate: 1.5 GPM maximum
- B. Bathroom Vanity:
  - 1. Faucet: Single lever faucet with 1.5 GPM maximum flow rate
    - a. Low Arch Faucet: Manufactured by Moen, Model number (Nickel) CA84002CBN

**2.02 DUAL FLUSH TOILET**

- A. Dual Flush Water Closets: ASME A112.19.14; high efficiency and low consumption (1.2 GPF), vitreous china, dual flush, tank type.
  - 1. Bowl: Elongated.
  - 2. Flush Actuator: Manufacturer's standard.
  - 3. Rough in: 12 inch (305 mm).
  - 4. Seat: Manufacturer's standard or recommended elongated closed front seat with lid.

5. Color: White.

### **2.03 BATHTUBS**

- A. Bathtub: ASME A112.19.4M porcelain on steel bathtub with slip resistant surface, contoured front apron, 60 inches (1500 mm) long, white color.
- B. Bath and Shower Trim: ASME A112.18.1; concealed shower and over rim supply with diverter spout, pressure balanced mixing valve, bent shower arm with adjustable spray ball joint showerhead with maximum 1.5 gallons per minute (5.6 liters per minute) flow and escutcheon, lever operated pop-up waste and overflow.

### **2.04 UTILITY TUB**

- A. Free-standing, single basin fiberglass utility tub with steel legs, drain assembly and faucet set.

### **2.05 SEALANTS**

- A. Silicone sealant between fixtures and all dissimilar materials. White silicone; ASTM C920, Grade NS, Class 100/50, Uses I, M, NT and A; single component, mildew resistant.

### **2.06 PIPING**

- A. Waste and Vent
- B. Supply
- C. Valves and Stops

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Provide each fixture with trap, easily removable for servicing and cleaning.
- B. Provide new PVC or ABS waste and vent piping from basement to kitchen sink, all bathroom fixtures, and laundry sink.
- C. Provide flexible PEX piping with a minimum number of coupling to all fixtures. Install mechanical connectors if appropriate for each fixture.
  1. Size pipe to 1990 CABO minimums per table 2406.5
  2. Include clothes washer hookup, dishwasher and ice-maker hookup.
- D. Provide all water piping and shut-off valves at each fixture necessary to complete work.
- E. Provide water meter to comply with existing code.
- F. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- G. Install components level and plumb.
- H. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07 9005, color to match fixture.
- I. Seal around plumbing penetrations in all exterior surfaces, surfaces that border on unconditioned spaces, between floors, and through the exterior of the building.
- J. Clean out basement floor drain at end of construction period and verify operation and function.
  1. Install new drain cover.

**END OF SECTION**

**SECTION 23 5400**  
**FORCED AIR FURNACE AND DUCTS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Provide sealed rigid duct from gas dryer to exterior and dampered exterior prefinished vent hood at dryer vent on exterior wall.
- B. Clean all HVAC ductwork.
- C. Provide documentation from a licensed duct-cleaning contractor that the duct system has been cleaned.
- D. Provide ducting from microwave range hood to exterior through roof.
- E. Provide all new ceiling mounted two-speed low-sone Energy Star exhaust fan with occupancy sensor in Bathroom. Provide ductwork with insulated rigid ducting to dampered vent in roof.
- F. Modify existing HVAC ductwork in Bathroom floor per new room configuration.
- G. Provide grilles at all HVAC supply and return locations throughout the house.
- H. Provide programmable thermostat in same location as existing thermostat.
- I. Provide furnace with 95% AFUE rating.
- J. Refer to Section 260001 for Bathroom exhaust fan and ducting.

**PART 2 PRODUCTS**

**2.01 GAS FIRED FURNACES**

- A. Annual Fuel Utilization Efficiency (AFUE): 0.95 ("condensing").
- B. Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating element, controls, air filter, humidifier, and accessories; wired for single power connection with control transformer.
  - 1. Safety certified by CSA in accordance with ANSI Z 21.47.
  - 2. Venting System: Direct.
  - 3. Combustion: Sealed
  - 4. Air Flow Configuration: Upflow.
  - 5. Heating: Natural gas fired.
- C. Performance:
  - 1. HVAC contractor will be responsible to determine heat load using Manual J.
- D. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
- E. Primary Heat Exchanger:
  - 1. Material: Hot-rolled steel
  - 2. Shape: Tubular type.
- F. Secondary Heat Exchanger:
  - 1. Material: Aluminized steel.
  - 2. Coating: Polypropylene.
- G. Gas Burner:
  - 1. Atmospheric type with adjustable combustion air supply,
  - 2. Gas valve, two stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
  - 3. Electronic pilot ignition, with electric spark igniter.
- H. Supply Fan: Centrifugal type rubber mounted with direct drive with adjustable variable pitch motor pulley.
- I. Motor: ECM motor; 1750 rpm two-speed, permanently lubricated, hinge mounted.
- J. Air Filters: 1 inch (25 mm) thick glass fiber, disposable type arranged for easy replacement.

K. Warranty: Minimum 20 year warranty on heat exchanges, 5 year warranty on parts.

## **2.02 DUCTWORK**

- A. Ducts: Reuse and clean all existing ductwork.
- B. Where new ductwork is required, provide code-compliant installation of rigid duct with sealed joints.

## **2.03 THERMOSTAT**

- A. Provide programmable setback thermostat.

# **PART 3 EXECUTION**

## **3.01 INSTALLATION**

- A. Remove existing furnace, recycle all metal components and dispose of all other materials in a code legal dump.
- B. Install with a 2" rise above the floor. Connect to existing ductwork and gas line. Vent with PVC per manufacturer's specifications. Rework cold air return if necessary to ensure easy access, good fit and easy replacement of air filter. Install an exterior return air filter box on one side, both sides or bottom of new furnace.
- C. Remove all existing cloth duct tape on ductwork prior to installing mastic. Seal all duct joints with duct mastic.
- D. Install in accordance with NFPA 90A.
- E. Install gas fired furnaces in accordance with NFPA 54.
- F. Provide vent connections in accordance with NFPA 211.
- G. The Contractor shall have all HVAC ducting cleaned by a professional duct cleaning company after all interior repairs are completed inside the house.

**END OF SECTION**

**SECTION 26 0001**  
**POWER, WIRING AND DEVICES**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide new circuit breaker panel.
- B. Provide a separate 20 ampere laundry circuit and a separate 20 ampere Kitchen appliance circuit.
- C. Verify that circuit breaker amperage matches wire size.
- D. Wire and ground electrical service to 2011 NEC.
- E. Purchase a permit for a service and 14 circuits.
- F. Ground the electrical service to the water service with a copper conductor within 5 feet of the entrance point of the water service.
- G. Bond around water meter with a copper wire sized for the electrical service per Article 250 of the NEC.
- H. Close openings in service panel/junction boxes with knockout seals and/or junction box covers.
- I. Properly strap cables and conduits in Basement/ service conduit on the exterior of the house.
- J. Provide hard-wired, battery backup smoke/CO detectors per bulletin 80-1 and other smoke detectors as required by the IRC. Conceal all wiring in walls and patch walls if openings are cut.
- K. Provide electrical service and wiring for new water heater, exhaust fans and Kitchen & Laundry appliances.
- L. Provide wiring, receptacles, switches and coverplates throughout the house as required by code and as specified in Bulletin 80-1. Existing device locations may be reused, and additional devices provided as required. All added receptacles must be grounded, tamper-resistant and be on an Arc-Fault Circuit Interrupter-protected circuit.
- M. Check all outlets for proper polarity and verify ground on 3-prong outlets.
- N. Provide doorbell chime in same location as existing doorbell chime and doorbell at front entry.
- O. Provide all new weatherproof outlet at Front Porch and at rear wall/patio area.

**1.02 SUMMARY OF BULLETIN 80-1 (PROPERTY MAINTENANCE CODE)**

- A. All hazardous, improper and/or illegal wiring shall be removed or required to the present Electrical Code. This will include other buildings on the property such as garages, sheds, etc.
- B. Minimum size for all new services for single residential occupancies shall be 100 ampere, 240 Volt.
- C. No additions or extensions will be allowed on an existing ampere services.
- D. The Following are minimum requirements for new service installation:
  - 1. **Electrical outlets required:** Every habitable room 120 square feet or less in area, of a dwelling or dwelling unit of a multiple dwelling shall contain at least two separate and remote duplex outlet shall be required for each additional 80 square feet or fraction thereof. Most new outlets must be Arc-Fault Circuit Interrupters (AFCI) protected according to Section 210.12 of the 2008 National Electrical Code.
  - 2. **In Kitchens:** Three separate and remote duplex outlets shall be required. At least one of the required duplex outlets shall be supplied by a separate twenty ampere circuit. Any new receptacle installed for the counter top shall be of the Ground Fault Circuit Interrupter (GFCI) type.
  - 3. **Every public hall, water closet compartment, bathroom, laundry room and furnace room must contain at least one electric light fixture.** In addition to the light fixture, every bathroom and laundry room must have at least one duplex outlet. The required duplex outlet in each laundry room must be on a separate twenty ampere circuit. The required duplex outlet in each bathroom must be of the (GFCI) type. Any existing outlets

in any bathroom must be converted to a GFCI-protected outlet or removed. The required GFCI outlet in the bathroom must be immediately adjacent to the sink. If a bathroom is added or gutted as part of the update, a 20 ampere circuit will be required per NEC 210.11(C)(3).

4. **Every common hall and inside stairway** in every residential structure or dwelling unit shall be adequately lit with an illumination of at least five lumens per square foot in the darkest portion of the normally traveled stairs and passageways.
5. **All exterior exits and entryways** are required to be illuminated a minimum of one footcandle at grade level for security.
6. **Exterior lighting** at garages is required to be adequate so as to not endanger health or safety. An average of one footcandle at the pavement is required. Exterior lighting must be in conformance with other city codes.
7. **Basement:** One lighting outlet is required for each 200 square feet of floor space. At least one of the required basement lighting outlets shall be switched from the head of the stairs.
8. **Smoke Detectors:**
  - a. All single-family dwelling shall have a hard-wired (120 volt electrical, not battery) battery-backup smoke detector installed near (not in) the bedrooms. If there are legal bedrooms on more than one level, the detector shall be installed on the level that has the greater number of bedrooms. If there are an equal number of bedrooms on more than one level, the detector shall be installed on the upper level near the bedrooms.
  - b. If the project includes building construction that requires a Building Permit, additional hard wired interconnected and/or battery-type smoke detectors are required per the Building Code.
9. **Metallic Light Fixtures (Luminaries):** If within five feet horizontally or eight feet vertically of grounded surfaces (metallic piping, concrete floor, etc.) must be grounded.
10. **Residential Closet Lights:** All closet lights must either be a florescent fixture(luminaire) or an enclosed incandescent fixture of the types required by the present Electrical Code. Fixtures must not be directly over the storage area in a closet; they must either be moved or eliminated and blanked off.
11. **Service conduits run in outside walls:** If a 100-ampere service is changed from fuses to circuit breakers, the meter is already outside, and the existing conduit is run in the outside wall, the conduit may be re-used. If the service is an upgrade (increase in amperage), conduit in the wall may not be re-used.

### 1.03 SECTION INCLUDES:

- A. Rewire house to code.
- B. Certify Electrical Distribution: Electrician shall inspect all exposed wiring, motors, fixtures and devices for malfunction, shorts and hosing code compliance. Non-functioning and dangerous equipment and wiring shall be replaced.
- C. Provide all new wiring and devices as required by the work covered in the Scope of Work.
- D. Replace existing electrical service with a residential, 150 amp, single phase, 3 wire electric service to the basement.

## PART 2 PRODUCTS

### 2.01 APPLICATIONS

- A. Conduit and Cable: Provide materials that meet code requirements.
- B. New Service: Include a main disconnect, 22 circuit panel board, meter socket, weather head, service cable, and ground rod and cable. Seal exterior service penetrations.
  1. New service panel shall conform to the BOCA Existing Structures code.
- C. Devices and Coverplates: Provide all White or Ivory devices per Project Managers Selection. Provide heavy duty residential grade devices.
- D. Smoke/CO Detectors: Hard wired w/ battery-back up type units

- E. Doorbell system: System containing a low voltage transformer, power connection, buzzer and front door button.
- F. Equipment Wiring: Provide the correct power supply on separate circuit, with over current protection including all connectors for the Water Heater, Boiler, Microwave, Refrigerator, Dishwasher, Washer, and Dryer.
  - 1. Kitchen Receptacles to be 20 amp Circuits:
    - a. Install small appliance circuits along counter tops to code.
      - 1) Evenly dividing the number of countertop appliance receptacles between 2 circuits.
      - 2) GFCI receptacles when they fall within 6 feet of sink.
    - b. Individual circuits for permanently installed appliances; range, dishwasher, exteriorly vented Microwave with Rangehood and refrigerator to code.
- G. Bathroom Vent Fan/Light Fixture: Shall be Energy Star rated ceiling mounted fan/light fixture rated for a min 100 watt exterior ducted vent fan capable of a minimum of 80 CFM
  - 1. Product: NuTone QTREN080FLT or like product to be approved by the Project Manager
  - 2. Switch: Light and fan shall use same switch with a time delay for fan such as the EFI/Light Time Delay Switch Part # 5100.505 or equipped with a humidistat sensor.
  - 3. Ducting: Install 4" metal duct and vent to the exterior ideally through a gable end using a 4" hooded vent with damper.
    - a. All duct seams shall be sealed with duct mastic. Insulate duct work with vinyl or foil faced R-6 minimum duct insulation.
    - b. Repair any damage to the ceiling installation or air seal fan/light assembly to the ceiling with low VOC caulk.
- H. GFCI Receptacles: Install flush mounted, ground fault circuit interrupted ivory duplex receptacle adjacent to lavatory using copper Romex.

## **2.02 MATERIALS**

- A. All materials shall be UL approved and/or National Electrical Code rated.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Building Codes: The extent of electrical work indicated in the Scope of work is stated generally to indicate end result of work. The Contractor is responsible for making a thorough inspection of the site to determine the full extent of work required to achieve the end results. All electrical work must meet current building code requirements and must pass City of Saint Paul field inspection. Any work that does not meet codes or pass inspection must be corrected to the satisfaction of the city inspector at no additional cost to the Owner.
- C. Remove and dispose of all abandoned wiring and devices. Modify existing wiring and devices as indicated.
- D. All new wiring, when passing through living areas, shall be concealed.
- E. All new receptacles and switches.
- F. All new outlet covers: Ivory.
- G. All drilling, cutting and fastening shall be neat and true, and shall not critically damage framing members.
- H. All patching shall match the surrounding surface.

### **END OF SECTION**

## SECTION 26 5101

### HRA LIGHTING

#### PART 1 GENERAL

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##### 1.01 LOCATIONS

- A. Provide all new light fixture in Front Porch soffit.
- B. Provide all new motion detector light fixture on the northeast corner of the Garage.
- C. Provide ceiling light fixture in Dining room, Bedroom 1, Bedroom 2, Kitchen, Bathroom and Rear Entry stair landing.
- D. Provide undercabinet light fixture over Kitchen sink.
- E. Provide Basement ceiling mounted light fixtures and provide wiring to new wall switch at top of Basement stair.
- F. See Color & Material Selections in appendix for fixture selections by room.

#### PART 2 PRODUCTS

##### 2.01 INTERIOR LIGHTING

- A. Patriot Lighting
  - 1. Product Series: Ashley, Oil Rubbed Bronze Finish
    - a. 13" Flush Ceiling Light: Model cc7583obb
    - b. 3 Light Vanity: Model v17581obb
    - c. 5 Light Chandelier: Model ch7580obb
- B. Other Acceptable Manufacturers: To be approved by Project Manager

##### 2.02 EXTERIOR LIGHTING

- A. Garages: DualBrite 300 watt motion security light with shields: Model SL-5318-WH-D
- B. Exterior Flush Mount
  - 1. Patriot Lighting
    - a. Mission

##### 2.03 BASEMENT LIGHTING

- A. Stairway: One fixture on stairway landing and one at the bottom of the stairway. Once switch at the top of the basement stairway to control these two lights.
- B. Additional ceiling mounted pull chain lights in various location throughout the basement where necessarily.

#### PART 3 EXECUTION

##### 3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. All new wiring when passing through living areas shall be concealed.
- C. Install luminaires plumb and square and aligned with building lines and with adjacent luminaries.
- D. Provide lamps with all light fixtures.

**END OF SECTION**



**SECTION 28 1600**  
**INTRUSION DETECTION**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide hardwired monitored security system with 2 door sensors, 2 control panels and 1 motion detector. Locate one door sensor and control panel at front entry door and one at Rear Entry door.
- B. Include a monthly monitoring service at a rate not to exceed \$50/month.
- C. Contracts for monitoring must be month to month, not an extended period.
- D. Monitoring shall begin upon completion of construction and be paid by Owner.

**1.02 QUALITY ASSURANCE**

- A. Conform to requirements of NFPA 70.
- B. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.

**PART 2 PRODUCTS**

**2.01 ALARM CONTROL PANEL**

- A. Control Panel: Modular construction with surface wall-mounted enclosure.
- B. Power supply: Adequate to serve control panel modules, remote detectors, and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for 24 hours.

**2.02 INITIATING DEVICES**

- A. Magnetic Switches:
- B. Motion Detectors:

**2.03 SIGNAL DEVICES**

- A. Alarm Bells: NFPA 72, electric single stroke, 8 inch (200 mm) bell with operating mechanism behind dome. Sound Rating: 81 dB at 10 feet (3 M).

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Use 18 AWG minimum size conductors for detection and signal circuit conductors. Install wiring in cable.
- C. As soon as System is installed contact HRA Project Manager Insert HRA PM's Name by email at Insert HRA PMs email to inform him/her to apply for a security permit.

**3.02 CLOSEOUT ACTIVITIES**

- A. Demonstrate normal and abnormal modes of operation, and required responses to each.

**END OF SECTION**

## SECTION 31 2200

### GRADING

#### PART 1 GENERAL

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##### 1.01 LOCATIONS

- A. Refer to grading and planting plan provided by Watershed District for grading work.

##### 1.02 SECTION INCLUDES

- A. Rough grading the site for site structures and planting beds.
- B. Topsoil and finish grading .
- C. Fill.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. opsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay, or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.
- B. Fill Materials
  - 1. General
    - a. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 2" in the greatest dimension and with no more than 15% of the rocks or lumps larger than 1" in their greatest dimensions, predominately granular, non-expansive soil. Fill material is subject to the approval of the construction manager and is that material removed from excavations or imported from off-site borrow areas.
    - b. Provide 6" minimum thickness of Class 5 base course under slabs-on-grade.
  - 2. Under All Paved Areas
    - a. Under Class 5 base course: Non-frost susceptible sand having less than 5% of the particles by weight passing the #200 sieve and less than 40% by weight passing the #40 sieve.

#### PART 3 EXECUTION

##### 3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

##### 3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.

##### 3.03 ROUGH GRADING

- A. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- B. Do not remove wet subsoil , unless it is subsequently processed to obtain optimum moisture content.
- C. When excavating through roots, perform work by hand and cut roots with sharp axe.
- D. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

##### 3.04 FINISH GRADING

- A. Before Finish Grading:
  - 1. Verify building and trench backfilling have been inspected.
  - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size. Remove soil contaminated with petroleum products.
- C. Build up ground slope at foundation wall using clean fill.

- D. New fill shall have an apporoximate slope of 1/12 and extend away from the foundation wall approximately five feet.
- E. Adjust window wells for new slope.
- F. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches (75 mm).
- G. Place topsoil to the following compacted thicknesses:
  - 1. Areas to be Sodded: 4 inches (100 mm).
- H. Place topsoil during dry weather.
- I. Remove roots, weeds, rocks, and foreign material while spreading.
- J. Vigorously tamp or roll new fill to achieve settled depth.
- K. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

**END OF SECTION**

**SECTION 32 1313  
CONCRETE PAVING**

**PART 1 GENERAL**

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**1.01 LOCATIONS**

- A. Provide concrete sidewalks and Garage apron, as indicated on the Landscape Plan.
- B. Provide one-step concrete landing at Garage service door.
- C. Provide concrete patio, as indicated on the Landscape Plan.

**1.02 REFERENCE STANDARDS**

- A. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- B. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.

**PART 2 PRODUCTS**

**2.01 PAVING ASSEMBLIES**

- A. Concrete Sidewalks and Patio: 3,000 psi (20.7 MPa) 28 day concrete, 4 inches (100 mm) thick, buff color Portland cement, exposed aggregate finish.
- B. Concrete Apron: 4,000 psi (27.6 MPa) 28 day concrete, 5 inches (125 mm) thick, 6/6 - 6 x 6 inch mesh reinforcement, wood float finish.

**2.02 FORM MATERIALS**

- A. Wood form material, profiled to suit conditions.

**PART 3 EXECUTION**

**3.01 SUBBASE**

**3.02 FORMING**

- A. Place and secure forms to correct location, dimension, profile, and gradient.

**3.03 COLD AND HOT WEATHER CONCRETING**

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F (4 degrees C), or surface is wet or frozen.

**3.04 JOINTS**

- A. Provide scored joints:
  - 1. At 3 feet intervals in sidewalk and 4 feet intervals in patio.

**3.05 FINISHING**

- A. Sidewalk and Patio Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch (6 mm) radius.

**3.06 PROTECTION**

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

**END OF SECTION**

**SECTION 32 3113**  
**CHAIN LINK FENCES AND GATES**

**PART 1 GENERAL**

**1.01 LOCATIONS**

- A. Provide chain link fence at west lot line as indicated on the Landscape Plan.
- B. Provide chain link fence and gate in two locations on the east side of the rear yard to completely enclose the rear yard, as indicated on the Landscape Plan.

**1.02 SECTION INCLUDES**

- A. Fence framework, fabric, and accessories.
- B. Manual gates and related hardware.

**1.03 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Concrete anchorage for posts.

**1.04 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- C. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011.
- D. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2010.
- E. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2011.
- F. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework; 2011.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Posts, Rails, and Frames: ASTM A 1011/A 1011M, Designation SS; hot-rolled steel strip, cold formed to pipe configuration, longitudinally welded construction, minimum yield strength of 50 ksi (345 MPa); zinc coating conforming to ASTM F1043 Type B on pipe exterior and interior.
- B. Wire Fabric: ASTM A 392 zinc coated steel chain link fabric, 4' high.

**2.02 COMPONENTS**

- A. Line Posts: 1.9 inch (48 mm) diameter.
- B. Corner and Terminal Posts: 2.38 inch (60 mm).
- C. Gate Posts: 3.5 inch (89 mm) diameter.
- D. Top and Brace Rail: 1.66 inch (42 mm) diameter, plain end, sleeve coupled.
- E. Gate Frame: 1.66 inch (42 mm) diameter for welded fabrication, 3' wide x 4' high.
- F. Fabric: 2 inch (51 mm) diamond mesh interwoven wire, 6 gage (5 mm) thick, top selvage knuckle end closed, bottom selvage twisted tight.
- G. Tension Wire: 6 gage (5 mm) thick steel, single strand.

**2.03 ACCESSORIES**

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

- C. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches (1525 mm) high, fork latch with gravity drop and padlock hasp ; keeper to hold gate in fully open position.

## **2.04 FINISHES**

- A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 oz/sq ft (530 g/sq m).
- B. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.
- C. Accessories: Same finish as framing.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install framework, fabric, accessories and gates in accordance with ASTM F 567.
- B. Place fabric on outside of posts and rails.
- C. Set intermediate, terminal, and gate posts plumb in hole cored into concrete slab and set with non-shrink grout.. Slope top of concrete for water runoff.
- D. Stretch fabric between terminal posts or at intervals of 100 feet (30 m) maximum, whichever is less.
- E. Position bottom of fabric 2 inches (50 mm) above finished grade.
- F. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches (380 mm) on centers.
- G. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- H. Install bottom tension wire stretched taut between terminal posts.
- I. Do not attach the hinged side of gate to building wall; provide gate posts.
- J. Install gate with fabric to match fence. Install hardware.

### **3.02 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch (6 mm).
- B. Maximum Offset From True Position: 1 inch (25 mm).

**END OF SECTION**

## **SECTION 32 9223**

### **SODDING**

#### **PART 1 GENERAL**

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##### **1.01 LOCATIONS**

- A. Refer to grading and planting plan provided by Capitol Region Watershed District for sodding work.

##### **1.02 REFERENCE STANDARDS**

- A. TPI (SPEC) - Guideline Specifications to Turfgrass Sodding; Turfgrass Producers International; 2006.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Sod: TPI, Certified Turfgrass Sod quality; cultivated grass sod; type indicated in plant schedule on Drawings; with strong fibrous root system, free of stones, burned or bare spots; containing no more than 5 weeds per 1000 sq ft (100 sq m). Minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.

#### **PART 3 EXECUTION**

##### **3.01 EXAMINATION**

- A. Verify that prepared soil base is ready to receive the work of this section.

##### **3.02 LAYING SOD**

- A. Moisten prepared surface immediately prior to laying sod.
- B. Lay sod immediately after delivery to site to prevent deterioration.
- C. Lay sod smooth and tight with no open joints visible, and no overlapping; stagger end joints 12 inches (300 mm) minimum. Do not stretch or overlap sod pieces.
- D. Where sod is placed adjacent to hard surfaces, such as curbs, pavements, etc., place top elevation of sod 1/2 inch (13 mm) below top of hard surface.
- E. Water sodded areas immediately after installation. Saturate sod to 4 inches (100 mm) of soil.
- F. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities.

##### **3.03 MAINTENANCE**

- A. General Contractor is responsible for the maintenance of sod until project closeout.

**END OF SECTION**

## SECTION 32 9300

### PLANTS

#### PART 1 GENERAL

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##### 1.01 LOCATIONS

- A. Refer to Landscape Plan provided by Capitol Region Watershed District for planting work.

#### PART 2 PRODUCTS

##### 2.01 PLANTS

- A. Plants: Species, size and quantity identified in Landscape Plan, grown in climatic conditions similar to those in locality of the work.

##### 2.02 MULCH MATERIALS

- A. Mulching Material: Hardwood species wood shavings, free of growth or germination inhibiting ingredients.

##### 2.03 TOP SOIL MIX

- A. A uniform mixture of 1 part peat and 3 parts topsoil by volume.

#### PART 3 EXECUTION

##### 3.01 RAINGARDEN INSTALLATION

- A. Remove 18 inches of soil leaving compacted 1 to 1 side slopes rising to finished grade.
- B. Deeply till and break apart basin floor beyond compaction.
- C. Add 2 inches of leaf compost and till into soil.
- D. Finish Raingarden by hand grading a flat, level basin and 2 to 1 side slope, as indicated on Landscape Plan.
- E. Add 2-inches of shredded hard wood mulch, as with slopes
- F. Install edging as indicated on Landscape Plan.
- G. Ensure that downspout runoff enters the raingarden.

##### 3.02 PLANTING

- A. Set plants vertical according to the Landscape Plan.
- B. Remove non-biodegradable root containers.
- C. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches (150 mm) under each plant. Remove burlap, ropes, and wires, from the root ball.
- D. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch (150 mm) layers. Maintain plant life in vertical position.
- E. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

##### 3.03 PLANT RELOCATION AND RE-PLANTING

- A. Relocate plants as indicated on Landscape Plan or by Construction Manager.
- B. Replant plants in pits or beds, partly filled with prepared topsoil mixture, at a minimum depth of 6 inches (150 mm) under each plant. Remove burlap, ropes, and wires, from the root ball.
- C. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch (150 mm) layers. Maintain plant materials in vertical position.
- D. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

##### 3.04 MAINTENANCE

- A. Provide maintenance at no extra cost to Owner; Owner will pay for water.
- B. Irrigate sufficiently to saturate root system and prevent soil from drying out.
- C. Remove dead or broken branches and treat pruned areas or other wounds.



- D. Neatly trim plants where necessary.
- E. Immediately remove clippings after trimming.
- F. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions.
- G. Control insect damage and disease. Apply pesticides in accordance with manufacturers instructions.
- H. Remedy damage from use of herbicides and pesticides.
- I. Replace mulch when deteriorated.
- J. Maintain wrappings, guys, turnbuckles, and stakes. Adjust turnbuckles to keep guy wires tight. Repair or replace accessories when required.

**END OF SECTION**

## Color and Material Schedule

Project Address: 117 Hatch						
Contractor:						
	Location	Description	Manufacturer	Finish	Color	Notes
Lighting	Bedroom 1, Bedroom 2, Kitchen, Rear Entry. (Total 4)	Flushmount Ceiling	Patriot Lighting, Ashley, Model cc7583obb		Oil Rubbed Bronze	at Menards
	Bathroom	3-Light Vanity	Patriot Lighting, Ashley, Model v17581obb		Oil Rubbed Bronze	at Menards
	Dining Room	5 Light Chandelier	Patriot Lighting, Ashley, Model ch7580obb		Oil Rubbed Bronze	at Menards
	Kitchen	Undercabinet above sink	24" fluorescent		white	at Menards
	Garage and Rear Entry Door	Motion Detector Sconce Light	DualBrite 300 watt motion security light, Model SL-5318-WH-D			at Menards
	Front Entry Porch	Ceiling Light	Patriot Lighting, Mission - Model: OF2739CU		white	at Menards
Plumbing Fixtures	Outlet and Switchplate Covers					
	Kitchen	Kitchen Faucet	Moen, Model: 7825		Chrome	at Menards
	Kitchen	Kitchen Sink	Moen, 33"X22"X8" Model 2212		Stainless	at Menards
	Bathroom	Bathroom Faucet	Moen, Low Arc CA84002CBN		Nickel	at Menards
	Bathroom	Recessed Oval Bowl Vanity Top	Imperial Marble, RC3722SPW		White	at Menards
	Bathroom	Shower/Tub Faucet	Moen, Model 82008CBN		Nickel	at Menards
Casework and Furnishings	Kitchen	Kitchen Cabinets	Schock Pleasant Hill, or Midcontinent Lewis, full overlay 5-panel door and flat drawer		Cider/Wheatfield	Maple cabinet at Menards or Home Depot
	Kitchen	Kitchen Cabinet Hardware	Schrock pull H-66		Bronze	at Menards
	Kitchen	Kitchen Counter Top	WilsonArt, Desert Springs 4904		Desert Springs	at Menards
	Bathroom	Bathroom Vanity	Pace, Model: MDW3621		Meadowood Maple	at Menards
	Bathroom	Medicine Cabinet	Pace, Model: SMC-2530		Meadowood Maple	at Menards
	Bathroom	Toilet Topper	Pace, Model: MOI-2430-MDW		Meadowood Maple	at Menards
	Bathroom	Towel Bar, 2	Moen, Model # DN6818xx		Brushed Nickel	at Menards
	Bathroom	Towel Ring	Moen, Model #DN6886xx		Brushed Nickel	at Menards
	Bathroom	Toilet Paper Holder	Moen, Model # DN6808xx		Brushed Nickel	at Menards
	Bathroom	Curved Shower Rod	Moen, Model # DN2160xx		Brushed Nickel	at Menards
	Coatings	Walls Throughout (except bathroom and kitchen)	Wall Paint	Sherwin Williams No VOC, SW 6154	flat	Nacre
Walls Kitchen		Wall Paint	Sherwin Williams No VOC, SW 6154	eggshell	Nacre	
Walls Bathroom		Wall Paint	Sherwin Williams No VOC, SW 6154	eggshell	Nacre	
Ceiling Throughout (except kitchen and bathroom)		Ceiling Paint	Sherwin Williams No VOC	flat	ceiling white	Knock Down Finish
Ceiling Kitchen and Bath		Ceiling Paint	Sherwin Williams No VOC	eggshell	ceiling white	
Trim Throughout		Stain and satin polyurethane		satin		
Accent Color Wall		Wall Paint	Sherwin Williams No VOC, SW 7536	flat	Bittersweet Stem	

Flooring	Living, Dining, Bedroom 1 and Bedroom 2	Existing wood strip flooring refinished				medium-dark oak	
	Kitchen and Rear Entry	Marmoleum linoleum	Forbo			Arabian Pearl 3861	
	Bathroom	Ceramic Tile floor	American Olean Unglazed Colorbody mosaic 1x2 and 1x1 mosaic, two color windmill pattern		matte	Salt and pepper (1x2)	
	Bathroom	Ceramic Tile wall	American Olean Profiles 3x6 wall tile and base		gloss	and Black (1x1) white	
Appliances							
	Kitchen	Range	Pre-purchased			Stainless	
	Kitchen	Microhood	Pre-purchased			Stainless	
	Kitchen	Refrigerator	Pre-purchased			Stainless	
	Kitchen	Dishwasher	Pre-purchased			Stainless	
	Basement	Washer	Pre-purchased			White	
	Basement	Dryer	Pre-purchased			White	
Doors							
	Front Entry	Steel Entry Door	Mastercraft Model Craftsman				at Menards
	Rear Entry	Steel Entry Door	Mastercraft Model LT-10, half view w/ internal blind				at Menards
	Garage Service Door	Steel Entry Door	Mastercraft Model E-1, six panel				
	Interior doors	Interior Door	Six-panel wood				
	Front Entry Door Hardware		Schlage Model 221-409x			Oil Rubbed Bronze	
	Interior Door Hardware		Schlage Model 221-399x			Oil Rubbed Bronze	
Exterior Finishes	House Siding	Fibercement, Pre-purchased	Pre-primed Hardie, Sherwin Williams Paint			SW7594 Carriage Door	
	Garage Siding	Fibercement	Pre-primed Hardie, Sherwin Williams Paint			SW7594 Carriage Door	
	Roof	Asphalt Shingles, Pre-purchased	GAF Elk Timberline			Weathered Wood	
	Door and Window Trim, Front Porch Columns, Beams and Railings						
	Front Entry, Rear Entry and Garage Service Doors	Fibercement	Pre-primed Hardie, Sherwin Williams Paint			SW7532 Urban Putty	
	Soffit/Fascia		Sherwin Williams Paint			SW7513 Sanderling	
	Deck/Porch	Aluminum color					
		Stain color	Sherwin Williams Stain			SW3524 Chestnut	
	Gutters/Downspouts	Aluminum color	Edco				at United Products